

JUNE
1921

Vol. 4 No. 4 TORONTO - Published by A. F. Penton & Co.

Price
15c

AVIATION & WIRELESS News

JUL - 7, 1921



Lt.-Col. J. STANLEY SCOTT, M.C., A.F.C.,
who succeeds Lt.-Col. Ronald Redpath
in command of the Canadian Air Force. Col. Scott
has been a member of the Air Board at Ottawa for the
past year as Controller of Civic Aviation and is known
as a most efficient officer and executive.

BARGAIN
—IN USED—
Aeroplanes
—AND—
FLYING BOATS

"CANUCK'S"

In excellent condition and guaranteed airworthy.

\$1,200.00, \$1,400.00, \$1,500.00

—ONE—
H.S.2.L FLYING BOAT

As good as new and very complete.

Price \$9,000.00

ERICSON AIRCRAFT
LIMITED

120 King St. East, Toronto

CANADIAN
RADIO - SUPPLY - HOUSE

SPECIAL

RADIO STORAGE BATTERIES

40 Ampere hour, 6 volts	\$22.00
60 Ampere hour, 6 volts	25.00
Baldwin Telephones, Type C	24.75
Brandes Telephone, Superior	12.00
THI—Transatlantic	18.00
NHI—Navy	21.00
Murdock Telephones, 2,000 ohm	6.00
3,000 ohm	7.20

Lateral Coils to order.

Inductances for Wireless Telephone.

Milliammeter and Hot Wire Meters.

Vario-Couplers and Variometers 4.25 |

Transmitters for Radio Purposes.....

 3.50 |

LOOK! LOOK! LOOK!

1/4 H.P. 110 volt 25 cycle Menominee Motors

 30.00 |

1/5 H.P. 110 volt 25 cycle Menominee Motors

 25.00 |

1/10 H.P. 110 volt 25 cycle Menominee Motors

 20.00 |

Send 5c for 30 page catalogue.

J. M. PAQUIN

THE ELECTRICAL SHOP

787 Queen St. W. Adel. 571 Toronto, Ont.

The Canadian Clearing House will consider proposals from Manufacturers who require Distributors for Canada.

We are in the Market for several good lines.

Address—

CANADIAN CLEARING HOUSE

314 STAIR BUILDING, TORONTO

WINDSOR

MONTREAL

TORONTO

When writing to Advertisers please mention Aviation & Wireless News.

CANADIAN AIR FORCE UNIFORMS

Best Material

Best Service

Best Workmanship

Enlarged Premises

Above Old Location

The best place to come for dress and every day requirements at prices which are right.

CIVIL AND MILITARY TAILORS

A Call Will Be Welcome

AUSTEN & WORKMAN
McGee Bldg. 93 Yonge Street
TORONTO

Extra Good Values in AIR FORCE UNIFORMS

— *Made to Measure* —

Since 1914 we have made complete outfits for thousands of members of the Air Force and various military organizations. We are authorities in military dress for all occasions. Members of the Canadian Air Force can secure their outfits here knowing that they will be made in regulation style and be perfect in fit.

TUNIC AND BREECHES

Made to
Your order **\$65.00**

Absolute Satisfaction Guaranteed

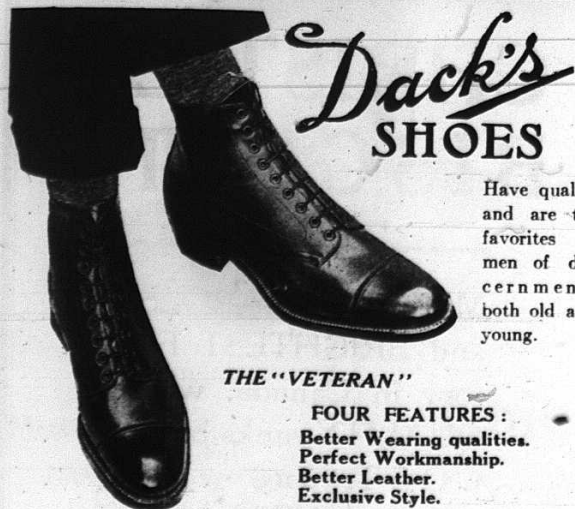
The material is a guaranteed pure wool English indigo dye serge which will give the very best wear.

We also supply Caps, Leggings, Puttees, Sam Brown's and Badges for all ranks.

GREAT COATS MADE TO MEASURE
At Reasonable Prices.

CRAWFORDS

Civil and Military Tailors
315 Yonge Street - - Toronto



Have quality and are the favorites of men of discernment, both old and young.

THE "VETERAN"

FOUR FEATURES:
Better Wearing qualities.
Perfect Workmanship.
Better Leather.
Exclusive Style.

Our list of satisfied customers include the majority of the members of The Canadian Air Force.

WRITE FOR LATEST STYLE BOOK.

R. DACK & SONS, Limited

Makers of Men's Shoes for over 100 years,

73 King Street West TORONTO



Smithsonian Institution

JUL - 7 1921

Office Library

Beauchamp & How Limited

Civil and Military Tailors

91 KING STREET WEST
TORONTO

C. A. F. UNIFORMS A SPECIALTY.

W. N. BEAUCHAMP

A. D. HOW

The Air Board

OTTAWA, CANADA

Chairman

HON. HUGH GUTHRIE, P.C., K.C., Etc.

Vice-Chairman

COL. O. M. BIGGAR, K.C.

Executive Members

[HEADS OF FLYING OR ADMINISTRATIVE SERVICES]

Inspector-General, C. A. F.

AIR VICE-MARSHAL SIR W. G. GWATKIN,
K.C.M.G., Etc.

Director of Flying Operations

LT.-COL. ROBERT LECKIE, D.S.O., D.S.C., D.F.C.

Controller of Civil Aviation

LT.-COL. J. STANLEY SCOTT, M.C., A.F.C.

Advisory Members

CAPT. WALTER HOSE, C.B.E., R.C.N.

DR. E. DEVILLE, LL.D.

Secretary

MR. J. A. WILSON

Director of Technical Services

LT.-COL. E. W. STEDMAN, A.M.I.C.E., A.R.C.Sc.
A.F.R.Ac., S.

Director of Medical Services

DR. W. H. CRONYN

Director of Equipment

H. C. CRAIG, A.M.E.I.C.

Accountant

F. X. TALBOT

Intelligence Officer

F. C. HIGGINS, A.M.E.I.C.

Wireless Association of Ontario

(Organized in October, 1913)

PROF. T. R. ROSBRUGH, Toronto, Hon. President

OFFICERS

W. C. C. DUNCAN, Past President.

C. A. LOWRY, President.

KEITH RUSSELL, Vice-President.

W. F. CHOAT, Secretary-Treasurer,
241 Robert St., Toronto.

COMMITTEE

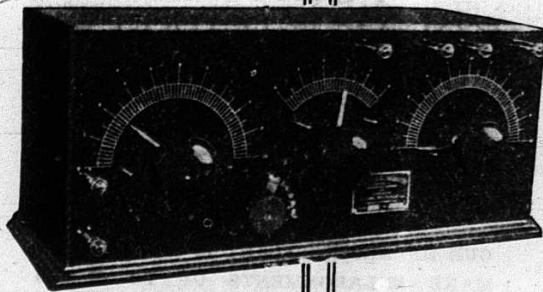
H. H. MOOR, E. J. BOWERS, R. YOUNG,
F. A. CLARK, T. C. CHURCHILL.

CHRISTIE'S BISCUITS

Made in the LARGEST
and BRIGHTEST Fac-
tory in Canada, where
QUALITY ranks before
COST, and where
CLEANLINESS is the
prime factor.

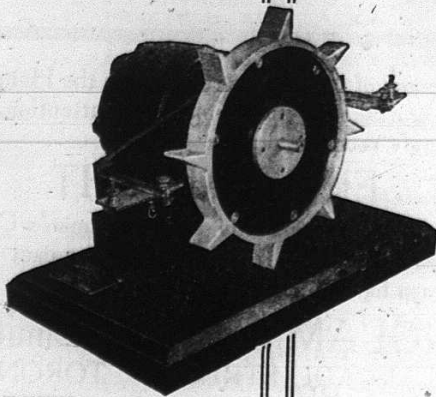
Christie, Brown & Co.
LIMITED, TORONTO

Canadian Amateur Radiomen—



Z-NITH
REGENERATOR

*A Super Short-wave
Receiver.*



Z-NITH
HY-RAD GAP

Meet us at the—
First A.R.R.L.
National Convention,
Chicago, Ill.,
Aug. 30-31, Sept. 1-2 & 3,
1921.

BECAUSE of the increasing number of Canadian Amateur Radiomen and their demand for a higher class of apparatus which will enable them to greatly improve their stations, we are entering this new field with an extensive advertising campaign through which we hope to acquaint you with the most perfect and highly efficient radio apparatus on the market today—the Z-Nith equipment.

We wish to impress upon you the reliability of every Z-Nith product, all of which are fully guaranteed.

No matter what your needs may be, there is a Z-Nith product that can't be beat. Anything, from the most minor piece of apparatus to a complete station equipment.

We want you to know of every detail concerning the Z-Nith apparatus. This is given in our new beautiful catalog which we will gladly send to you upon request. Write for it today.

Chicago Radio Laboratory,

Offices and Factory—6433 RAVENSWOOD AVE.,
CHICAGO, ILL., U.S.A.

9 Z-NITH PRODUCTS

SPARK GAPS	DETECTORS	AMPLIFIERS	RADIOPHONES
AERIAL SWITCHES	O.T.'S	REGENERATORS	MICROPHONES
			GENERATORS

When writing to Advertisers please mention Aviation & Wireless News.

JAEGER

PURE WOOL

NEGLIGEE SHIRTS

HAVE A DISTINCTIVE STYLE



Made of fine pure wool Zephyr and Wool Taffeta, in exclusive patterns, Jaeger Pure Wool Shirts have all the "appearance" which superior material and skilled workmanship give to Jaeger Goods.

Far superior to cotton or linen, not only for exercise and outdoor sports, but also for year round wear in office, or when travelling. Made in all sizes, with single or double cuffs, shirt or coat style.

For Sale at Jaeger Stores and Agencies throughout the Dominion.

A fully illustrated catalogue free, on application.

MILTON'S LIMITED

32 King St. West

707 Yonge Street

TORONTO

PHOTOGRAPHIC SUPPLIES

FOR

AERIAL, COMMERCIAL,
PORTRAIT,
KODAK and GRAFLEX
PHOTOGRAPHERS

*Enlarged Pictures from
your Negatives*

OUR ENLARGING PLANT IS EQUIPPED TO
MAKE ENLARGEMENTS UP TO 40 x 60
INCHES. RESULTS GUARANTEED. SEND
FOR PRICE LIST.

H. C. TUGWELL & Co. Limited

73 BAY STREET

TORONTO, CAN.

WHAT THE PILOTS SAY ABOUT THE PIONEER BANKING INDICATOR



A CAPTAIN IN THE AIR SERVICE:

The instrument is splendid. I thought at first that it would be too sensitive. It works perfectly and is particularly useful in long cross-country flights, when one is apt to get a little tired and perhaps careless. With the Banking Indicator in front of you, you always keep the ship level on a straightaway, and it must prevent unknown detours and carry you on your course much more directly than without it.

ROLAND ROHLFS, CURTISS TEST PILOT:

The instrument is entirely reliable and well acting in every respect. It responds readily to any incorrect banking maneuver. In other words, whenever the machine is banked too much or not enough the white disc appears on the side of the instrument that represents the wing that should be raised to correct the error. . . . I would say that it performs all the duties of any Banking Indicator perfectly, and the novelty of having the white disc show when incorrect banks are made is very good.

TEST PILOT, POST OFFICE AIR SERVICE:

Your small Banking Indicator is by far the best yet. The Indicator is so sensitive that indications are given long before the human senses can notice the divergence from the lateral horizontal. It also seems to have the property of being very stable in action in spite of the great sensitiveness.

PIONEER INSTRUMENT COMPANY
136 Havemeyer Street Brooklyn N.Y.

As many of the injuries received in the Hangars and workshops require immediate attention, we strongly recommend our

FIRST AID KIT

Put up as required by The Workmen's Compensation Board. It is small, compact and always handy.

INGRAM & BELL, Limited
256 McCAUL STREET TORONTO

A. Walker Corlis

One of the leading photographers in Toronto for many years, will be in Camp Borden soon to make portraits of those desiring them. Watch for Bulletin and Samples at Officers' Mess.

AERO CLUB of CANADA

Affiliated with
The Royal Aero Club of The United Kingdom and The Federation Aeronautique Internationale

Honorary President

H.R.H. THE PRINCE OF WALES, K.G.

President

LT.-COL THOMAS GIBSON, C.M.G., D.S.O., Etc.

Vice-Presidents

LT.-COL. DOUGLAS G. JOY, A.F.C.

MR. ADAM F. PENTON

Honorary Treasurer

LIEUT. C. E. WILLOWS

Honorary Secretary

LIEUT. M. C. PURVIS

Past Presidents

1916-17—COL. WM. HAMILTON MERRITT
(Deceased)

1917-19—CAPT. JAMES P. BEATY

1919-20—LT.-COL. W. G. BARKER, V.C., D.S.O. etc

1920—AIR COMMODORE A. K. TYLEE,
O.B.E.

1920—MAJOR B. S. WEMP, D.F.C., Etc.

Directors

MAJOR M. M. SISLEY, A.F.C.

MR. H. P. HERINGTON

MR. F. C. ERICSON

LIEUT. J. K. SHOOK

CAPT. E. A. McKAY, M.C., D.F.C.

LIEUT. T. R. MEREDITH, R.N.C.V.R.

MR. W. F. SPARLING

LIEUT. H. S. CAMPBELL WILSON, R.N.V.R.

LIEUT. W. N. BICKLE

Secretary: CAPT. A. J. HEMBER

Club Headquarters: 34 Yonge Street, Toronto

OBJECTS OF THE AERO CLUB

1. TO PROMOTE AND MAINTAIN A SOCIAL ORGANIZATION OR CLUB FOR THE ADVANCEMENT AND ENCOURAGEMENT OF VARIOUS FORMS OF AVIATION.
2. TO ADVANCE THE DEVELOPMENT OF THE SCIENCE OF AERONAUTICS AND ITS PRACTICAL APPLICATION.
3. TO ENCOURAGE AND ASSIST THOSE DESIROUS OF TAKING UP AVIATION WITH A VIEW OF RENDERING SERVICE TO KING AND COUNTRY.

OBJECT NO. 1

Club quarters are being maintained, including lounge, billiards, cardroom and lunchroom.

* Until further notice the Clubrooms are open daily from 9 A.M. to 6 P.M. except Sundays and public holidays.

* Meals are served daily to members and their guests.

* THE DIRECTORS ARE NOW CONSIDERING PROPOSITIONS FOR MORE ADEQUATE QUARTERS IN WHICH IT IS HOPED TO PROVIDE BEDROOM ACCOMMODATION FOR VISITING MEMBERS.

* As soon as deemed advisable and practicable, the Club will endeavour to maintain and operate an airharbor and suitable aircraft for the use of members, or to make suitable arrangements with an existing concern.

* Out-of-town members are invited to write in to the club on any matters in which the Club can reasonably render personal service for members.

OBJECT NO. 2

Ways and means are being provided for making the Club a clearing house and information bureau on matters of aeronautical interest.

* Members and others are invited to correspond with the Club — especially those who are engaged in commercial aviation, or are in a position to teach flying.

* Owners of aircraft open for contract work are invited to register with the Club. Full information with regard to equipment and terms should be given.

* It is desired to obtain costs of operation in order that reliable data may be compiled for the use of members and aviation interests.

OBJECT NO. 3

The Club is in favour of the Government maintaining an Air Force on adequate and economical lines consistent with the considered opinions, as to organization, of those competent to advise.

* The Club will use its influence and organization in encouraging the youth of our country to engage in aeronautical work for the development of our commerce and natural resources, and for service to the Empire when necessary.

MEMBERSHIP

Membership is open to Officers of the Canadian Air Force, Officers and Cadets of the Royal Air Force, and other branches of the Canadian and Imperial United Services; also to civilians wishing to take up or become interested in aviation generally. Apply to the Secretary for terms of membership and application forms.

Membership carries privileges of visiting membership in all Aero Clubs throughout the world affiliated with the Federation Aeronautique Internationale.

The regular monthly issue of *Aviation News* is mailed free to all members.

AERONAUTICAL SPORTING EVENTS, RECORDS, ETC.

The Federation Aeronautique Internationale is recognized throughout the world as the dominant authority for the control of aeronautical sporting events and for the establishment of aeronautical records, and provides the necessary rules and regulations for the conduct of such. By agreement through the Royal Aero Club of the United Kingdom, authority has been vested in the Aero Club of Canada to represent and act for the F. A. I. in the Dominion of Canada.

Catching the Aerial

MEASURED in time sixty minutes still make an hour. Measured in distance the hour has expanded almost beyond recognition.

A hundred years ago one hour was required to travel six miles by stage coach. The locomotive and motor car have gradually expanded the hour to sixty miles—plus.

Today the racing airplane measures the hour at 180 miles—plus, with 240 miles a possibility of Tomorrow.

"Catching the Aerial" means expanding distribution for every industry in the country. It means that your customer gets his order almost as quickly as if he were in your own town.

In turn his customer's order is more promptly filled. And so the endless chain starts on its way toward revolutionizing the Commerce of the World.

For particulars as to just how far Martin airplanes can expand the hours in your industry, write to us on your business stationery.



TRADE MARK

THE GLENN L. MARTIN CO.
CLEVELAND

Member of the Manufacturers Aircraft Association



TRADE MARK



AVIATION & WIRELESS NEWS

JOURNAL OF THE AERO CLUB OF CANADA
AND
COMMERCIAL AIR PILOTS ASSOCIATION

ADAM F. PENTON, Publisher.

C. LINCOLN-MITCHELL, Publication Manager

Volume 4.

TORONTO, JUNE, 1921.

No. 4

Airmen of Canada Make Valuable Suggestions to Air Board and Canadian Air Force

**Less Government Operation—More Private Enterprise—and a Large
Volunteer Air Force Wanted**

By ADAM F. PENTON.

Several important gatherings of airmen have taken place in Canada recently and apparently there is a definite and concrete effort being made to get aviation matters throughout the country in a more progressive condition. The feeling has existed in all quarters that many changes were needed in the present course of procedure in order to achieve the results desired for Canada in matters aeronautical. With nearly 20,000 trained flying men in Canada, men who not only know what they are talking about, and who must be credited with an unusual amount of national and public spirit—the weight of their arguments and their views cannot help but be taken most seriously. In fact it could not be expected that any other class of citizen could know better or as well what the country needs most in both the development of commercial aviation or in the establishment of an air force of a nature that would give Canada protection during turmoil or assist the Empire during war.

The Aero Club of Canada, with its affiliations has developed a far-reaching influence which has been augmented by those of its members who have given careful study to the problems which have confronted the Ot-

tawa authorities. As a result of this interest matters so far as the Aero Club of Canada were concerned, crystallized in the form of a special general meeting of the organization, Friday evening, June 18, at A. C. of C., headquarters at Toronto. At this meeting a carefully prepared document, containing a plan of procedure for the Air Board and Canadian Air Force to follow, was endorsed in its entirety after its phraseology had been worked out to the satisfaction of every one. This document is unique, not only because of its priceless recommendations, but because its endorsement was unanimous.

On the occasion of this meeting the Aero Club of Canada was favored with the presence of representative airmen from the East and the West who added their unanimous approval of the proposals.

Lt.-Col. Douglas Joy presided at this meeting in the absence of the President, Lt.-Col. Thomas Gibson, who had called the meeting at the request of various members.

Aviation and Wireless News publishes herewith an exact copy of the proposals which were passed on to the executive of the Canadian Air Force Association and Air Board who assembled in convention at Camp Borden, Ontario, Tuesday and Wednesday, June 21 and 22.

C. A. F. Convention at Camp Borden

The Canadian Air Force convention was not as tame an affair as was the previous meeting. It was characterized by a keen interest in the future of commercial aviation and the Canadian Air Force. Criticism was there aplenty, but of a constructive, advisory character, and, therefore, most useful. It seems that almost the entire time of the convention was devoted to the subjects referred to in the A. C. of C. proposals which were discussed step by step, but without voting. It is generally understood that Ottawa will concede to these recommendations, but this remains to be seen. Summarized, the whole situation resolves itself into two big problems but which in the opinion of aeronautical men and such members of the Dominion Parliament as have thus far expressed themselves, may be easily solved. These are best described as follows:

The development of commercial Aviation.

The establishment of a large volunteer air force with a very small permanent staff of instructors, etc.

In the first case it would mean the curtailment of the Dominion Government's activities in aviation, thus leaving the field so far as possible to the exploitation of private enterprise.

History for ages past has proved that private enterprise moves faster than Government effort.

To-day it is a startling fact that there is less commercial aviation in Canada than before the war, and yet we have thousands and thousands of trained, high class flying men.

Therefore the present course needs to be changed. The Government authorities could then be of vastly greater assistance to commercial aeronautics.

It is also a fact that there are very numerous private enterprises ready to break their fetters if given the least encouragement. Obviously, this would be not only good for Canada industrially, but of priceless aid in case of war.

The unanimous sentiment of aeronautical interests all over Canada, says: "Do it now."

Lt.-Col. O. M. Biggar, vice-chairman of the Air Board, was not present at the Canadian Air Force convention.

The press was excluded.

From Camp Borden, after the deliberations of the Provincial Executives and the Air Board officials, who reluctantly left the hospitality of Lt.-Col. Williams, O.C., passed on to Toronto, where a reception by the Aero Club of Canada awaited them.

The program opened Thursday noon with a ceremony presided over by President Gibson—the unveiling of a large picture of His Royal Highness, the Prince of Wales, now Honorary President of the Aero Club of Canada. Following this was a luncheon attended by some 150 and later a motor launch trip around Toronto harbor as guests of the Harbor Commission for those able to get away for the afternoon.

Following are those who attended the Canadian Air Force convention at Camp Borden:

Captain W. Hose, C.B.E.

Major General J. H. MacBrien, C.M.G., C.B., D.S.O., etc.

Major General Sir Willoughby Gwatkin, K.C.M.G., C.B., etc.

Wing Commander Robert Leckie, D.S.O., Supt. Flying Operations.

Wing Commander J. S. Scott, M.C., D.F.C., Controller Civil Aviation.

J. A. Wilson, Esq., Secretary Air Board.

Lieut.-Col. E. W. Stedman.

Headquarters Canadian Air Force

Wing Commander R. F. Redpath, Officer Commanding, C.A.F.

Squadron Leader F. G. Pinder, S.O.I.

Alberta

A. H. Clarke, Esq., K.C.

Flight Lieut. D. A. MacRae, Secretary.

British Columbia

Wing Commander J. Scott Williams, M.C.

Manitoba

Major E. P. Featherstonhaugh, M.C.

Flight Lieut. Elmer Spear.

Flight Lieut. H. J. Cathcart.

Flight Lieut. A. L. Cuffe.

Flying Officer Woodman, F.O., M.C., Secretary.

Maritime

Flight Lieut. J. L. M. White.

Pilot Officer A. E. Stephenson.

Flying Officer H. R. Stewart, Secretary.

Ontario

Colonel R. W. Leonard.

Wing Commander D. G. Joy, A.F.C.

Flight Lieut. E. G. Joy, Secretary.

Quebec

E. Greenwood, Esq.

Flight Lieut. Mostyn Lewis, Secretary.

Saskatchewan

Flight Lieut. J. R. Hopkins, D.F.C., C.A.F.

Flight Lieut. R. A. Delhay, D.F.C., C.A.F.

Flight Lieut. W. F. N. Forrest, D.F.C., C.A.F.

AERO CLUB OF CANADA ANNOUNCEMENT

Club Pins or Buttons

Silver and enamel, \$1.25 each, post paid.

Gold and enamel, \$3.50 each, post paid.

Supplied to members only. Buttons sent unless otherwise ordered.

Club Hat Bands

\$1.25 each, post paid.

Supplied to members only. Dark blue with narrow French grey centre and red lines above and below centre, edged in white. Now adopted as the Club colours. Ready about 1st August.

Club Cigarettes

A high grade Virginia cigarette made up specially for the Club. Name of Club printed in blue on the papers.

In boxes of 25, 65c. per box, post paid.

In boxes of 50, \$1.20 per box, post paid.

In boxes of 100, \$2.25 per box, post paid.

Supplied to members of the Club and Canadian Air Force.

Orders with remittance to be sent to the Club, 34 Yonge street, Toronto.

AVIATION & WIRELESS NEWS

[Official Journal of the Aero Club of Canada]

PUBLISHED MONTHLY.

60-62 Adelaide Street East, Toronto, Ont.

ADAM F. PENTON, Publisher.

C. LINCOLN MITCHELL, Publication Manager.

Erskine Williams, Ad. Mgr.

Subscription price \$1.50 a year. Single copies 15 cents.

Advertising Rates upon request.

PROPOSALS RE THE CANADIAN AIR FORCE

The following suggestions regarding the Canadian Air Force are put forward for the purpose of discussion and criticism. They do not involve extensive changes in the present organization or regulations, both of which are considered basically sound.

It is proposed, however, that a small permanent staff be provided and that the duties of the Air Force be extended.

1. Royal Canadian Air Force

That His Majesty be requested to allow the use of the prefix "Royal" and that Prince Albert be appointed Honorary Commandant.

2. Voluntary Force

That the force be a voluntary one as at present, the majority of its members serving short training periods periodically at a central college or local training station, preference being given to pilots and mechanics engaged in civil flying.

3. Personnel

That the personnel, both officers and airmen, be classified as follows:

(a) Short Course

Serving short terms periodically at a local training station or central college. At other times (in the evenings) attending lectures at their local universities and technical schools. Short course personnel to be paid at half rates of pay with an allowance of say twenty-five cents per night for each lecture attended.

(b) Long Course

Cadets and apprentices attending a central college for a period of years. Cadets to be trained as officers and engineers (mechanical, electrical, aeronautical, etc.) and to pay fees. Boys (apprentices or mechanics) to be trained as machinist electricians, photographers, watch-makers, sail-makers, etc. They will receive little or no pay.

(c) Staff

A small number of officers and men to hold perma-

nent appointments in order to provide instructors and administrative personnel for both the long and short course personnel.

4. Units

Nominally units will be geographical and attend for training at their local camp as a unit, the Air Force Associations to become district commands, the whole to be subordinate to a staff at Ottawa or the central training college. The present ground instructional school at Camp Borden to be the nucleus of this college, there being buildings and much equipment for this college now available at Borden.

5. Duties

The work to be done by the Air Force to consist primarily in training in aeronautics as large numbers as economically possible.

The Air Force to undertake all flying required by the military, naval, police and customs authorities, and also only such other work of an aeronautical nature as will necessarily be done by the Government; all work, distinctively civil, to be let by tender to commercial concerns, which it is suggested be subsidized, either in money or material.

Foreword

Engineering training for officers and mechanical training for boys. The need for trained mechanics in Canada will be noted owing to there being no apprenticeship system. An air force college should to a certain extent take the place of this apprenticeship system and provide trained mechanics who will "Fear God and Honor the King."

6. Funds

Funds for the maintenance of an air force to be secured from,—

- (a) Federal appropriation.
- (b) Fees from cadets at central college.
- (c) Payments for military, naval, police duties, etc., from the departments concerned.
- (d) Other sources.

AIR BOARD ANNOUNCEMENTS

It is hereby notified:—Moose Jaw, Sask., Customs Airharbour (Lat. 50° 24' N., Long. 105° 34' W.), situated in Lynbrook Heights addition to the City of Moose Jaw. Altitude, 1,865 ft. above sea level; dimensions, 400 yards N. and S., 700 yards E. and W.; licensed for use by day only, and marked with a square and circle inserted divided in equal parts by a vertical line.

Customs personnel on duty when notified at the Collector of Customs' Office, Moose Jaw. Directional wind indicator, on western side of aerodrome. Telephone connection and water supply. There are facilities for repair, fuel supply and machine accommodation and a handling party stationed on the aerodrome.

Available communication to city. Electric railway adjoining aerodrome. Good roads.

Licensee—City of Moose Jaw, Sask.

Operated by the Western Aeroplane Co., Ltd., Moose Jaw, Sask.

UNIFORM & EQUIPMENT CO. LIMITED

SPECIALISTS IN OFFICERS' UNIFORMS

Also Cadets', Scouts' and all other classes of Uniforms

Manufacturers of THE FAMOUS E. M. SUSPENDER BELT

57 COLBORNE STREET

TORONTO, ONT.

Curtiss Report on Eagle Crash

New York.—C. M. Keys, President of the Curtiss Aeroplane & Motor Corporation, to-day issued the following statement concerning the recent airplane accident in which seven persons were killed:—

"I have notified the proper officers of the Government that we desire a full investigation into the character of the Eagle and that we hope the findings of this investigation will be made public.

"We have complete faith in the ship, and are willing to rest upon the testimony of the many army and civilian fliers who have flown it during more than a year of safe and successful operation."

Following the receipt of a report on the Curtiss Eagle accident, made by W. L. Gilmore, chief engineer of the Curtiss Aeroplane & Motor Corporation, Glenn H. Curtiss authorized the following statement to-day:—

"This accident reveals with tragic emphasis the chaos in which American flying is involved. It would not have occurred had there been in existence a properly charted

route and sufficient emergency landing fields, or if, lacking these, the properly centralized machinery for gathering and disseminating storm warnings had been in existence and functioning. We must co-ordinate our flying and place it under responsible control.

"W. L. Gilmore, chief engineer for the Curtiss Aeroplane & Motor Corporation, after conferring with army officers and others, has submitted his report. Judged from the condition of the wrecked plane, from the testimony of witnesses and from the experience of Capt. B. S. Wright, during the same storm, the following appears to have occurred:—

"The Eagle was in perfect flying condition. All controls were intact and in working order. On the trip to Langley Field it carried about 2,400 pounds useful load and on the return about 2,000 pounds. Its maximum capacity is over 4,000 pounds. Therefore the machine was not overloaded. The gale was blowing at probably 90 or 100 miles an hour. The pilot searched for a place to land. Although the route between Langley Field (Hampton, Va.) and Bolling Field (Washington) is heavily traveled, the route is not charted and no emergency landing fields have been established. Consequently the pilot, fighting the storm, had to make the best landing possible under the circumstances. He circled Morgantown, headed into the gale, throttled his engine and approached a field surrounded by heavy trees 30 or 40 feet high. The velocity of the wind was so terrific that the crests of the trees were bent over like wheat.

"What occurred then is deduction. Captain Wright, with a light, manoeuvrable and heavily powered plane, skimmed the bowed tops of the trees surrounding another field about seven miles distant. He reports that the gale, flowing over the cleared ground and up and over the trees, created an air current similar to a huge and powerful swell at sea. His plane at first dipped, then rose, then was caught under the tail and sent diving earthward. This plane, a Fokker, has such speed and such manoeuvrability, that it was possible to right it partly before it struck. The result was that only the undercarriage was swept off. Still having flying momentum, Wright rose, then dipped and landed on his nose, but with such reduced speed as not to seriously injure himself, although his plane turned turtle and was wrecked.

"From Captain Wright's experiences, under similar circumstances, it is believed that the Eagle, coming over the treetops, encountered the upward stream of air. The pilot undoubtedly increased his power and elevated the plane. The terrific gale then must have caught the Eagle under the tail and sent it nose down. Although not overloaded, the Eagle, because of its size, was slower than the Fokker to respond to the controls, with the result that it crashed into the earth at a speed of probably over 100 miles an hour."

The Secretary of the U. S. Navy has approved the final awards under the Navy competition for ship-board airplanes. The first award goes to the Dayton-Wright Company, whose designs will be purchased for \$16,000; the second award went to G. Elias and Bro., Inc., who will receive \$10,000 for their design; the third award was to the Curtiss Airplane and Motor Corporation, whose design will be purchased for \$5,000, and the fourth

When Money is Tight

Practically all classes of investments—bonds, stocks, debentures, real estate—depreciate in value to a ruinous extent. Investors are often forced into bankruptcy at such times through conditions over which they have no control.

But an Imperial Life policy never depreciates. On the contrary, it continues to increase in value during week-days, nights and Sundays, from the time it is issued until its maturity, no matter what business conditions or the state of the money market may happen to be.

If you would like to know more about this "panic-proof" investment just send us your name and address. Then we'll send you some interesting literature by return mail.

Just send your name and address to any member mentioned below.

The Imperial Life Assurance Company of Canada

HEAD OFFICE TORONTO

W. A. PEACE, Branch Manager.

Special Representatives:

WALTER T. SMITH,
Residence Phone North 7704

C. E. WILLOWS,
Residence Phone Bel. 3258 J.

J. McM. MACLENNAN,
Residence Phone North 7704

Ground Floor

20 VICTORIA ST.

ADEL 6658

award was made to Alexander Klemin, whose design will be purchased for \$3,000.

The board who passed on the designs was composed of the following officers: Senior Member, Commander Jerome C. Hunsaker, Construction Corps, Aviation Section; Lieutenant Commander Sidney M. Kraus, Aviation Division, Bureau of Engineering; Lieutenant Commander Wadleigh Capehart, of the Material Section, Naval Operations (Aviation); and Lieutenant Raymond D. MacCart, Construction Corps, Aviation Section, as recorder.

At the preliminary competition the designs of the four concerns above mentioned and A. L. Morse, of the Massachusetts Institute of Technology, were judged of sufficient merit to compete in the final competition. The board convened on May 24th to examine the designs under the final competition, with the results given above.

The board states that in their opinion, while useful information has been obtained from all five designs and the competitors have shown a praiseworthy zeal in attempting a difficult problem, that the designs of the Dayton-Wright Company and G. Elias and Bro., Inc., are sufficiently promising to warrant experimental construction at this time, and the board recommends that negotiations with these firms be made at once with a view of arranging a contract for the construction of sample airplanes for experimental flying tests on shipboard.

It is expected that these planes will solve the difficult problem of providing the Navy with ship-board planes for taking-off and landing on ships and also on the surface of the water.

WINGLESS MACHINE

Final tests have just been completed successfully on a novel flying machine, invented by a Chicagoan.

For sixteen years the mechanical geni of the Leinwever family have been concentrated on experimentation with an improved helicopter—a screw-propelled flying device, in which the lifting is accomplished by two pairs of horizontal blades revolving in opposite directions.

The cherished dream of a decade was realized when, in the presence of a deputation of noted engineers, at the Speedway Park, New York, recently, the novel contraption brazenly defied all laws of gravitation and ascended vertically in the air. Victor Curtiss and William Leinwever and his three brothers also witnessed this triumph of science. Their father, Herman Leinwever, who originated the idea, never lived to see the invention perfected. The machine is devoid of fragile wings, characteristic of aeroplanes. The space occupied by this metallic bird is just the space of a rigid fuselage. Two sets of propellers of original design on each side of the tonneau rotate in revolving axes. The machine may arise and descend vertically. After the desired height has been reached, the propeller axis can be tilted in either direction, developing a lateral as well as a vertical velocity. By manipulation of the motors the machine may be brought to a distinct stop at any time in flight. It can be jockeyed back and forth, and landed with utmost accuracy on a platform just the size of the machine. It is equipped with an automatic stabilizer, operated by compressed air. The invention is modeled upon the principle of flight invoked by nature. A large machine equipped with 12 large motors, that will carry 60 tons, will soon be constructed.

AIR BOARD ESTIMATES PASSED

The estimate of the Air Board for \$700,000 for civilian aviation was passed by the House of Commons recently. Hon. Hugh Guthrie, in charge of the estimates, explained that Canada was to have the advantage. Flying men were now used to stop the smuggling of drugs into Canada. The habit had been for smugglers on large ships to throw the drugs overboard when many miles from harbor. Smaller craft had picked up the buoyed packages and landed them in obscure ports, from which the contents were transported by hidden routes to the large cities. Aircraft, in experiments conducted by the Government, had proved an effective means of combating such traffic. He also referred to the Dominion Land Surveys, in which the airplanes had played a valuable part.

However, after a question by Mr. Lemieux, the Minister said that airplanes were impossible on account of the prohibitive cost, in the matters of commercial enterprise, at the present time. Mr. Lemieux asked about the London-Paris service. Mr. Guthrie replied that it was not a commercial success. There was a theory, he continued, that an air service never could be a success. Mr. Lemieux replied that the word "never" was not in the dictionary of the successful. A. R. McMaster (Brome) argued that expenditure, except for a matter of experiment, was against economy, and that such a large expenditure should not be made.

CAPT. ROY MAXWELL RECOVERING AT HAMILTON

Capt. Roy Maxwell, of Hamilton, Ont., the well-known aviator, is at home convalescing. Capt. Maxwell had a narrow escape in the fall of the Curtiss Sea Gull near the Laurentide Company's property in Quebec. His presence of mind is credited as saving crew and himself.

AIRCRAFT MUST DEVELOP THE NORTH



The above is a unique but hitherto unpublished picture taken near Cochrane, Northern Ontario, showing the H S2 L flying boat of the Filmcraft Industries, Ltd., of Toronto. Capt. Roy Maxwell is shown in the foreground. This picture is another evidence of the future of aircraft in the development of the North Country.

Aviation in Southern California Grows From a Sport to Business

Aviation as an American attraction has grown in Los Angeles County until now it takes a leading place in California's commercial life.

By Major M. Shook.

Major A. M. Shook, D.S.O., D.S. C., former Secretary of the Air Board at Ottawa, herewith tells us about the present conditions of the business in Southern California. New York and Chicago experts, Major Shook states, agree separately, that there will be three great aircraft manufacturing and flying centres in the United States—New York, Chicago and Los Angeles.

Experts are willing to concede that Los Angeles county has an excellent opportunity of becoming the foremost aircraft centre in America, and admit freely that there is no activity anywhere in the United States at all equal to that in Southern California, where it is possible to fly almost every day in the year in comfort and safety.

Advantages of Southern California

Aircraft can be manufactured and tested in Southern California on a generally equal basis with any other point in the United States and in many respects to better advantage.

Ample material is available, factory conditions are favorable, required skilled labor is at hand, living conditions are attractive, testing and demonstrating may be carried on throughout the year, as Southern California has no closed season. In addition the public interest, local, national and foreign, can easily be attracted in Los Angeles.

Aircraft makers realize this and the industry has reached a stage much in advance of the local conception.

Since the cessation of war permitted turning to commercial work large flying fields have been established and the routes north and east have been flown over.

Commercial Enterprises

There are now seven aircraft manufacturers actively under way in Los Angeles county and half a dozen others preparing to open factories. The naval and military activity aside from the dirigible flying, which is considerable, shows up well with that in the east.

The Aero Club of Southern California has more than 100 flying fields or emergency landing fields listed in its flying territory. It is expected during the present year to make demonstrations of locally made aircraft with a view to establishing new records, especially from the business efficiency standpoint, and no doubt these records will be established.

A recent aero show at Long Beach, California, held during Christmas week, had a better and more interesting display than any of the great aero shows held in the past year in New York, Chicago and San Francisco.

Long Distance Flights

Los Angeles built aeroplanes are flying daily and covering not only local country but are going into the San Francisco section, into Nevada and Arizona, and mak-

ing flights over the mountains and desert constantly.

One all California machine, designed and built in Venice, California, and equipped with Berkeley made engines is the first American twin motor aeroplane to fly successfully with one motor, keeping the other in reserve. This is a cabin-type biplane, designed by Otto Timm and built by George Stephenson. It has attracted publicity for Southern California in New York, London, Tokio Sydney and other centres.

Factories in Los Angeles

The principal manufacturers of aircraft in Southern California, other than the Goodyear Tire and Rubber Company, which is one of the world's best known builders of balloons and dirigible airships, are the following concerns:—

The Davis-Douglas Co., 421 Coylton street, Los Angeles, builders of the "Cloudster" type of airplane and seaplane, designed by Donald W. Douglas, who designed the Martin bomber and other well known flying machines.

C. Robert Little, 44 West Green street, Pasadena, builders of the Barnhart twin-motored commercial airplane, designed by G. Edw. Barnhart, whose first airplane, built locally in 1915, is still being flown regularly.

Western Aircraft & Engineering Co., 1212 East Sixth street, Los Angeles; builders of airplanes and engines of their own design. The men in this company, J. McK Ballou, V. W. Balzer and Roy S. Gracie, are well known in airplane work and they have established an exceptionally well equipped plant.

Pacific Airplane & Supply Co., 320-330 Sunset Avenue, Venice; builders of the various types of the Pacific standard biplane. Their business extends into Georgia, Illinois, Kansas, Wyoming and other part of the country, demonstrating that this section may be a national aircraft center.

W. D. Waterman Aircraft Mfg. Co., Third street and Sunset avenue, Venice; building biplanes designed by W. D. Waterman, who has been in aviation work in Southern California since 1911.

Catron & Fisk, Venice, who have built and flown the first triplane in this section and now have a large triplane almost ready for test flights.

White Aircraft Works, South Los Angeles; builders of the White biplanes.

In addition there are several companies being promoted for the purpose of manufacturing and operating aircraft. There are several well equipped agencies, such as the Mercury Aviation Company, agents for the Junkers Larson monoplane; the Earl P. Cooper Company, agents for both machines and motors, and others. There are a number of accessory manufacturers of propellers, radiators and other supplies. Parts and supplies for air-

RADIO APPARATUS

*Distributors of Reliable Radio Apparatus
to Schools, Colleges and Experimenters
All Over the World!*

"PITTSO"

**SERVICE FILLS ORDERS ON
EVERY CONTINENT!**

WHY NOT LET US SERVE YOU?

"PITTSO"

**SERVICE REACHES ALL OVER
THE WORLD**

WHY NOT LET IT REACH YOU?

AMPLIFYING TRANSFORMERS

No. UV-712 Radio Corporation, new type just out. (For radiotrons)	\$7.00
No. 226-W Federal	7.00
No. 231-A General Radio, new type	5.00

MODULATION TRANSFORMERS

No. A-3 Acme, unmounted	4.50
No. A-3 Acme, semi-mounted	7.00
No. A-3 Acme, fully mounted	7.00
No. 231-M Gen. Radio new type, just out! (for radiotrons,	5.00

AUDION CONTROL PANELS

No. RORH Grebe, in cabinet, with tickler connections	17.00
No. 330 Remler, with "A" Battery potentiometer	8.00
No. P-1 Paragon, moulded type, very small and compact	6.00

"B" BATTERIES

No. 7623 Standard, 22.5 V. small	1.50
No. 7623 Standard, 22.5 V. large	2.65
No. 7650 Standard, 22.5 V. variable	3.50
No. 766 Eveready, 22.5 V. large	3.50
No. 766-A Eveready, large, variable	3.50
No. 763 Eveready, 22.5 V. small	2.25
No. P-1 "Sorsine," new type, just out! 22.5 volts, extra long life	4.00

AMPLIFIERS

No. RORH Grebe two step with automatic filament control	55.00
No. RORD Grebe Det. and two step with automatic filament control	75.00
No. P-1 Amrad Type A, two step	39.50
No. DA Westinghouse, Det. and two step just out!	65.00

CONDENSERS (Fixed mica type)

No. ROCC Grebe .0002 MF	1.00
No. ROCD Grebe .0005 MF	1.20
No. ROCE Grebe .001 MF	1.60
No. ROCF Grebe .005 MF	3.00
No. ROCA Grebe .0002 MF and 5 meg. leak	1.20
No. ROCB Grebe .0002 MF and 3 meg. leak	1.20

GRID LEAKS

No. MW-1 Radio Corporation, 5, 1, 1.5, 2, 3 and 5 megohms complete. Each	1.25
Grid leaks only	.75
Bases only	.50
No. 21 Chelsea, variable, 5 to 5 megohms.	3.00

MAGNAVOXES

Type R-3 Magnavox loud speaker, latest model, just out!	45.00
Magnavox Radiophone hand transmitter	25.50
Magnavox Radiophone transmitter tone-arm	37.50

REGENERATIVE RECEIVERS

No. CR-2 Grebe 175-680 meters	51.00
No. CR-3 Grebe 175-680 "Relay-special"; splendid set	65.00
No. CR-A Grebe 175-375 meters with tube control, complete set	45.50
No. CR-5 Grebe 175-3000 meters, "Super-pedal," with tube control, complete set. Ideal for jewelers	80.00
No. CR-6 Grebe 175-680 meters, receiver, det. and two step amplifier self-contained, complete set	200.00
No. CR-7 Grebe 500-20000 meters, "Long-wave special," with tube control, complete set. Ideal for arcs	210.00
No. RA Westinghouse, 180-700 meters, new type, just out!	65.00

PLUGS

No. 50 Pacent universal type	2.00
No. 1428-W Federal, brass	2.00
No. 1428-W Federal, silver-plated	2.50

JACKS

No. 1421-W Federal, open circuit	.70
No. 1422-W "closed circuit	.85
No. 1423-W "two circuit	1.00
No. 1435-W "automatic filament control type	1.50
No. 1438-W Federal Auto. filament type	1.50

MICROPHONES

No. 260-W Federal hand type	7.00
No. HM-100 DeForest hand type	6.00
No. 5176-A Conn., with short adjustable arm, ideal for panels	4.25

RHEOSTATS

No. 214 General Radio 2.5 Ampere type, just right for one UV-202 5-watt radiotron tube	2.50
No. 132 National Controller type, 6.4 amperes, just right for 2 UV-202 5-watt radiotrons	5.50
No. P-1 Paragon, very compact	1.75

SOCKETS

No. MW-1 Radio Corporation	1.50
No. 156 General Radio	1.75
No. 550 Murdock	1.00
No. S-2 Radio Service double	2.50
No. S-3 Radio Service triple	3.50
No. UV 203-A Radio Corporation type for the UV-203 50-watt tube	5.00

RECTIFYING DEVICES

No. P-1 DeForest rectifying tubes for radiophone work	7.00
No. FF France battery booster, 6 amps.	115.00
No. P-1 Tungar 2 amp. size, complete	19.00
No. UV-216 Radio Corp. Kenotron, 20 watts	7.50

TELEPHONES

Type C Baldwins, Navy type	16.50
Type E Baldwins, ultra-sensitive	20.00
Type F Baldwins small, super-sensitive	21.00
Brandes "Superiors"	8.00
"Trans-atlantics"	12.00
"Navy-type"	14.00
"New headband only	1.50
"New double cord	.75
Browns 4000 ohms English type	20.00
Browns 8000 ohms English type	22.00

VACUUM TUBE (Radiotrons)

No. UV-200 Radiotron detector	5.00
No. UV-201 Radiotron amplifier	6.50
No. UV-202 Radiotron 5 Watt transmitter	8.00
No. UV-203 Radiotron 50 Watt transmitter	30.00
No. UV-204 Radiotron 250 Watt transmitter	110.00

Note—All radiotrons sent postage and insurance prepaid to any part of U. S. A. and Canada. Radiotrons always in stock.

STORAGE BATTERIES

No. BX-3 Harvard 6 volts, 40 ampere-hours, complete	16.50
No. BX-5 Harvard 6 volts amp-hours	19.50
No. BX-7 Harvard 6 volts 80 amp-hours	24.50

VARIOMETERS

No. 200 Tuska, moulded type	6.25
No. 200-A Tuska, moulded type with dial	7.25
No. 345-G Murdock grid type	7.50
No. 345-P Murdock plate type	7.50
No. 346 Murdock Vario-coupler	8.50
No. ZRV Clapp-Eastham Variometer with dial	6.50
No. RV-A Clapp-Eastham Variometer only	5.75
No. P-1 Turney's spider web inductance; ideal on radio-phones	8.00

POTENTIOMETERS

No. 214-C General Radio "A" Battery type, 400 ohms, ideal with radiotrons	4.00
No. 55 Remler "A" Battery type	.75
No. F-743 Clapp-Eastham "B" Battery type, 5000 ohms, fully mounted	3.00
For panel mounting	2.50
No. PR-536 Radio Corp. type "A" Battery	2.00

RESISTANCE (Phone Work)

No. 1 Ward Leonard 500 ohms	2.25
No. 2 Ward Leonard 10000 ohms	3.50

"Let 'PITTSO' products, super-service and delivery solve your Radio problems"

SEND US YOUR ORDERS TODAY!

Send ten cents in stamps for Catalog No. 22. Over 100 pages, over 150 illustrations, over 600 items

F. D. PITTS & CO., Inc.

12 Park Square

Dept Z.

Boston, Mass., U.S.A.

When writing to Advertisers please mention Aviation & Wireless News.

craft are now being shipped from Los Angeles county to all parts of the United States, and in some instances even into Mexico and Canada. The natural advantages which Southern California possesses have already created world-wide interest. Some of the best aviators in the world are already established there and others are anxious to locate in this beautiful district. Fields, factories, routes and other essentials to build up business are available and open all year round.

Business Recognition

It is interesting to note that those engaged in the aircraft industry in Southern California insist that their greatest need is not the great financial backing but emphatically a serious consideration of business interests of flying. They are urging the newspapers to take aviation out of the sporting columns and give it business attention.

Flying has its uses as a gentlemen's sport but it has much greater benefits to give the world in transportation, in life saving and in defense. It is entitled on its record to be considered as a safe and valuable aid to business. The community that recognizes this will go far to putting itself on the map in the future.

Flights totalling 1,000,000 miles have been made around or out of and into Los Angeles since the war period ended, and in these but one passenger and five stunt flyers were killed. It is common-place now to fly from Los Angeles to San Francisco in less than four hours, or to go to Arizona or Bakersfield, or Victorville, or San Diego. This signifies that the useful business aiding period of the aeroplane has arrived.

The Los Angeles Chamber of Commerce was the first to establish an Aeronautical Department. Venice and several other California cities have city commissions on aviation. There is a Los Angeles County aircraft created to safeguard and license flying, and a determined effort is being made to put Southern California definitely and thoroughly on the map as a permanent commercial centre for flying.

THE AERIAL TAXI-CAB

An aerial taxi-cab in London costs approximately the same as an earth-bound taxi in New York, according to Prof. E. P. Warner, of the Massachusetts Institute of Technology and the National Advisory Committee for Aeronautics, in his paper, "Commercial Aviation in Europe," read recently before the Commercial Aviation Session of the annual meeting of the Society of Automotive Engineers of the U. S.

"The charge in England for an aerial taxi," Prof. Warner said, "is 2s. 6d. or 44c for two persons per mile, and an airplane can usually be had at an hour's notice." This fare is only two and one-half times as large as that for an earth-bound taxi in London, and it costs approximately the same amount to travel by airplane in England as by taxi-cab in New York. Prof. Warner said the actual costs of air travel in Europe have shown a tendency to steady reduction. He asserted the fare charge on the London-Paris route was originally 20 guineas, but has since been decreased several times, and now stands at 10 guineas (\$37.00) for the one way journey and 18 guineas for the round trip. The fare to Brussels is the same, while that to Amsterdam is 15 guineas one way. Figures

were compiled and presented to the Air Conference in London last September, showing that large planes could operate profitably carrying passengers between Paris and London for £5 10s. (\$19.50 at the present exchange), if the machines could carry a full load on each trip.

Statistics compiled show that during the first eleven months of commercial flying in England, between England and the continent, there was a total of 24 accidents, four of which resulted in the death of one or more occupants of the airplane. "The pilot was killed in all four cases," he said, "while, in the whole eleven months one passenger was killed. The average death rate among pilots was 0.415 per thousand hours, or one death for every 2,410 hours of flying, while the average among passengers was 0.015 fatality per thousand passengers carried and 0.55 per thousand passenger hours." This works out roughly as one death for every 67,000 passengers and every 18,200 passenger hours, or, taking the average cruising speed of commercial aircraft as 90 m.p.h., as one fatality for 1,640,000 passenger miles. During the year 1917 the passenger death rate for railroad travel in the United States was one for every 3,220,000 passengers carried, a danger ratio of 48:1. In some years American railroads have shown themselves less than twenty times as safe as has the airplane in its first year of commercial use.

BULLETINS FROM AERO CLUB OF CANADA

The West Algoma Agricultural Association, Fort William, are open to place a contract for flying at the Fall Fair, September 13th, 14th and 15th. This is to include exhibition flying and the privilege of passenger carrying. Particulars may be obtained from Mr. W. Walker, Secretary.

Mr. Henry B. Saint, of Monkseaton, England, is anxious to get in touch with any former comrades of his son, the late Lieutenant William Bell Saint, of 19 and 70 Squadrons, who was shot down on September 15th, 1916.

Would anyone who knew the late Lieut. Saint please communicate with the Secretary, Aero Club of Canada, Toronto.

Mr. Ernest J. P. Benn, Managing Director of Benn Bros., Ltd., London, England, was a visitor at the Aero Club during the month. His firm are the publishers of the well known English periodical "Aeronautics." Mr. Benn is the brother of Major Wedgewood Benn, M.P., R.A.F., who is known to many Canadian members of the R.A.F.

The Malcolm Crearer Aviation Chapter, I.O.D.E., Hamilton, Ont., are preparing an Honor Roll of all who enlisted from Hamilton in the Royal Flying Corps or Royal Air Force. Mrs. J. W. Boyd, Corresponding Secretary, Station 18, Hamilton Beach, would be glad to receive names.

It is safer to buy advertised goods. The advertising in this magazine is a safe index to reliable business

Aero Bombing Experiments in U.S.

Secretary Dneby, of the U. S. Navy, authorizes the following:

Final plans for the bombing, by the U.S. Navy and U.S. Army aircraft, of the battleships and other surface types of naval vessels were completed in May at a joint conference of officials of the Atlantic Fleet, the U.S. Navy Department and of the U.S. Army Air Service.

The bombing experiments will start June 21st with the bombing of the ex-German submarine, the U-117, which will be followed on June 28 by a search problem and an accuracy of bombing test on the radio-controlled battleship Iowa. The army has withdrawn from this second phase of the joint operations all of its land planes, and will use only the seven seaplanes it obtained from the Navy and four airships or blimps which it possesses. The other operations against the ex-German destroyers, the ex-German cruiser Frankfurt, and the ex-German battleship Osteriesland will be conducted about 60 miles east of Cape Charles lightship where there is 60 fathoms of water.

In these the Army will participate with the Navy, using bombs ranging from 200 to 2,000 pounds. In these tests also, the Army recommended they be conducted within 30 miles of shore, but the Navy considered this to be impracticable. The Atlantic coast slopes in depth along this portion of the seaboard.

The communication arrangements were also completed, so that both the Army and the Navy aircraft can communicate by radio at all times with the shore bases at Hampton Roads and Langley Field and with the surface ships in the vicinity and so that also they can talk among themselves in flight on the radio telephone.

The exercises themselves will be conducted under the direction of the Commander-in-Chief of the Atlantic Fleet, Admiral Henry B. Wilson, and this conference to-day has brought to a close the final arrangements for participation of the Army in the event and the co-ordination of their units.

Brigadier-General W. Mitchell has been ordered by the War Department to the command of the Army Air Force at Langley Field which will participate in the bombing exercises.

The Navy Air Forces will be commanded by the Commander of the Atlantic Fleet Air Forces, Captain A. W. Johnson, U.S. Navy, with headquarters on the U.S.S. Shawmut, and the Base Commander, Captain S. H. R. Doyle, U.S. Navy, at Hampton Roads, will be in charge of operations at the base.

The Shawmut will take station at the targets in the case of the ex-German ships, and at about the center of the scouting area in the case of the Iowa experiment. She will make weather reports and transmit necessary orders and information from the Force Commander to the Base and Scouting Force. In the case of the ex-German ships, rescue ships will be provided by the Navy between the base and the target, intervals between these vessels not being greater than ten miles.

Owing to the uncertainty as to the location of the Iowa until after contact has been reported, it will be impossible to provide a line of rescue vessels between the ship and the base, but surface ships will take assigned position as soon as possible after the contact is made.

The German ships will be at a point about fifty miles east of Cape Charles Lightship, which is 13 miles east of Cape Charles Light. The Iowa in the zero hour will be at some point between the latitude of Cape Hatteras and Cape Henlopen, 50 to 100 miles off shore steaming toward shore with the idea of reaching the coast before she is located and bombed by aircraft.

Navy air boats and Army dirigibles will form a scouting line between the two Capes and will scout to the eastward for a distance of 100 miles off shore, or until contact is made with the Iowa.

The schedule for the bombing is as follows:

On July 15th the Battleship Force Destroyer Operator Squadron will be in the Southern Drill Grounds and the Air Forces concentrated at Chesapeake Bay. The first experiment will be on June 21st against the U-117, by the Air Forces of the Army and the Navy. On June 28th will be the exercises against the Iowa; on the 1st of July the Battleship Force Destroyer Operator Squadron will proceed to New York for the holidays, returning to the southern drill grounds on July 11th. On July 13th will be the experiment against ex-German destroyers; on 18th of July the experiment against the ex-German cruiser Frankfurt, and on July 20th the destruction of the ex-German Battleship Ostfriesland.

The Navy Department has arranged to turn over to the Army the obsolete battleship, Alabama, for such experiments as the Army Air Service may desire to make. The Alabama will be turned over as soon as she has been stripped of salvaged equipment and materials. The Navy has been invited to participate in these experiments and has accepted.

New Plane to Attempt Record-Breaking Non-Stop Flight Los Angeles-New York

David R. Davis, of Los Angeles, and Eric Springer, chief pilot for the Davis-Douglas Company of that city, will attempt a non-stop flight from Los Angeles to New York late this month or early in July, the Manufacturers' Aircraft Association announced to Aviation and Wireless News. They will fly the "Cloudster," a giant plane especially designed for the trip, which will take them over the 2,500 miles airline separating the coasts. If they succeed in their attempt they will have broken the world's record for distance in a non-stop flight made by Alcock and Brown in their 1,940-mile trans-Atlantic flight in 1919, and also the world's duration record of 24 hours and 19 minutes held by the Farman Goliath. Davis and Springer believe it will require approximately 30 hours for them to reach New York without stopping en route.

The machine was designed by Donald W. Douglas, President of the Davis-Douglas Company of Los Angeles. It is a tractor biplane with a 400 h.p. Liberty motor, and has a wing spread of 56 feet, is 35 feet long and stands 13 feet from the ground. Empty, it weighs 3,800 pounds. It is entirely of American design and construction, even the wing curve being of recent American development.

Big Aviation Events Across the Border

Ten thousand persons attended the opening of the New York civilian flying season at Curtiss Field, Garden City, Long Island, Sunday, May 15th. They saw the Aero Club of America formally take over its new club house from the Curtiss Aeroplane & Motor Corporation, which owns and operates the principal airdrome in the metropolitan area. Curtiss Field was known as Hazlehurst during the war and was the largest and best equipped army flying field in the east. When the Curtiss Corporation bought it from the Government, the officers' club house was tendered to the Aero Club of America with a view toward providing that nationally representative organization with a home located in the centre of flying activities.

The club house is being equipped with a restaurant and other conveniences. Many of the flags and trophies owned by the Aero Club have been used in the decorative scheme. Glenn H. Curtiss, C. Roy Keys and Frank H. Russell of the Curtiss Corporation, presented the club with a large flag during the brief ceremonies on the fifteenth. Mr. Curtiss made a few remarks in which he dedicated the house to civilian flying. Richard F. Hoyt, Chairman of the Board of Directors of the Wright Aeronautical Corporation and a Governor of the Club, Caleb

S. Bragg, Chairman of the Contest Committee, Maurice G. Cleary, Directing Governor, and Augustus Post, Secretary, formed the Receiving Committee.

There were all sorts of flying activities during the afternoon. Miss Laura Bromwell kept the visitors craning their necks for an hour and twenty minutes while she looped the loop 199 times, in a Curtiss Standard, her second record. A year ago she looped 87 times.

The United States Air Mail Service which maintains its New York terminal at Curtiss Field, celebrated its third birthday. All the various planes used in transporting from sixteen to forty thousand letters daily between New York and San Francisco were on exhibition. Curtiss, Sperry, Orezco, Baco, Farman and Ansaldo planes, which are using Curtiss Field as a flying base, were up on various acrobatic and formation flights. Bert Acosta, C. S. "Casey" Jones, Dick Depew, W. L. Gilmore and other pilots gave the gallery everything possible in the way of stunt flying and passenger carrying.

Hundreds bought passage for short flights. The Curtiss Aeroplane & Motor Corporation announced that the field would be open to the public every Sunday. It is easily accessible from New York, the Long Island trains operating at regular and short intervals to Mineola or Garden City where taxicabs take one to the field in a few minutes.

Barrie Business Directory

For convenience of Members of C. A. F.
at Camp Borden

We carry a full line of FOOT COMFORT APPLIANCES

And can give you FOOT EASE, at all times

Men's Black or Colored Calf Boots, Welted Soles, specially priced
at \$7.50 a pair.

THE HURLBURT SHOE CO.

32 DUNLOP STREET

BARRIE, ONT.

WELLINGTON HOTEL

ROOMS \$1.00 to \$2.00

EUROPEAN PLAN

BARRIE

ONTARIO

VICKERS LIMITED

OUR—YOUR STORE

DRY GOODS & MILLINERY

Women's Ready to Wear Apparel and Men's Clothing and Furnishings

VICKERS LIMITED

BARRIE

J. G. KEENAN

Everything in Sheet Music
and Musical Instruments.

BARRIE, ONT.

Phone 243

Strings a specialty. Mail orders receive prompt attention.

WANTED, AND FOR SALE

Line advertisements under this heading 4 cents a word, minimum \$1.00.

Pilots seeking positions or companies wanting pilots will hit the nail on the head by advertising in this column.

If you have anything to sell advertise here.

Notices of meetings and propaganda work reaches the right people through this medium.

Through this column you are talking to your prospect direct.

Address Editor Aviation News, 60-62 Adelaide St. East, Toronto.

FOR IMMEDIATE SALE—One Curtiss Canuck in flying condition, Airworthy Certificate, with \$200 worth of spares. Make me an offer. F. W. McCrea, Sherbrooke, Que.

FOR SALE—Curtis JN-4, registered, perfect flying condition, fitted with sea floats and land undercarriage. Flown 30 minutes since overhauled. Delivery ex Chicoutimi Air Harbor. Price \$1,200.00 or best offer. Apply Aviation Dept., Price Bros. & Co., Ltd., Chicoutimi, P.Q.

Sport Plane Builders Attention.—We can furnish for immediate deliveries the Lawrence L-A 3, 30/40 H.P. aviation motor; the latest 2-cylinder opposed type, air cooled; weighs only 128 pounds. Specially priced in original factory crate, \$200.00 complete.

Free advice and blueprint design of latest L-A 3 Sportplane. Bordelon, 108 Trolleyway, Venice, Cal.

THE AERO CLUB OF CANADA

The Directors of the Club have been faced with some of the serious problems which frequently concern such organizations and in particular with the conditions attendant on world-wide social and industrial readjustment.

The Club, originally organized in the interests of those engaged in aviation service during the war, and now extended to embrace all branches of the Canadian and Imperial Forces as well as civilians desiring to become interested in aeronautics, is maintained and supported by young men.

Before going further into the question of the future policy of the Club, the recent decisions and action of the Board of Directors should be given.

After some months of careful consideration, it was decided that now, even in a year of depression with general financial conditions in a more or less precarious state, plans should be made to enter into arrangements to establish the Club on a sound basis.

The principal problem to be faced was the securing of adequate and suitable accommodation of a more or less permanent nature, and as near as possible to the centre of the business section. After examining many prospective buildings, the Board have secured the St. James' Cathedral Rectory on a favorable lease with a first option to purchase. The accompanying view and plans will fairly indicate the fortunate position we are in of possessing club quarters without equal in the business section of the City of Toronto. The Club House is situated on Adelaide Street East, just three minutes' walk from Yonge Street. It is in a quiet neighbourhood and stands in its own grounds. All the best and most comfortable of good club features can be arranged for in the new building. A feature which no other club so

close to the centre of the city possesses is the open grounds, which will admit of certain recreative pleasure. Special sections for recreation in racquets, tennis, bowling, flying, etc., will be established as soon as facilities can be obtained.

The residential accommodation will prove a great convenience to non-resident members visiting Toronto.

Another feature which perhaps no other similar club in Canada offers to its members is its affiliation with the Federation Aeronautique Internationale, through which members of the Aero Club of Canada have the privilege of being guest members in at least sixteen of the principal countries throughout the world in which there are Aero Clubs established. This applies particularly in Great Britain, France, Belgium, Italy, Spain, Switzerland, Japan, United States, Brazil, South Africa, Australia, etc.

This Dominion-wide and world-wide feature has already proved invaluable. In the present quarters no day scarcely goes by without members of this Club and visiting members from other clubs unexpectedly meeting old comrades or acquaintances.

Connections with other organizations and interests are being established in various directions for the benefit of members generally. A part of the Club's activity is devoted to assisting in the development of aeronautics and in encouraging the use of aircraft as a means of national defence, conservation and development of national resources.

The Club has very recently been honored by H.R.H. the Prince of Wales accepting the Honorary Presidency of the Club. It is also hoped that permission may soon be obtained to change the name to the Royal Aero Club of Canada.

PREPARATIONS TO SINK NINE FORMER GERMAN WAR VESSELS

In an effort to acquire as many large bombing planes as possible for the joint Army and Navy bombing tests to be conducted off the Virginia Coast, beginning June 21, the Army Air Service recently gave ten Army airplanes to the Aerial Mail Service in exchange for the Martin Mail Plane, No. 202.

Although Plane 202 has been in the Air Mail Service since November, 1919, and has to its credit a record of 25,608 miles, flown at an average speed of 90 miles per hour, it is now at the plant of the Martin Company in Cleveland undergoing alterations which will transform it into a modern bomber.

Of the armada of a hundred or more planes to be used in the forthcoming bombing tests to determine the effectiveness of aerial attack against battleships, the majority of twin-motored planes will be Martin Bombers and Martin Navy Torpedo Planes. The latest type of Martin Bomber carries 3,000 pounds of bombs in addition to a complete armament of machine guns.

The Martin Navy Torpedo Plane carries the standard size Navy Torpedo, as well as bombs and machine guns. Both of these airplanes have a speed of 105 miles per hour with a cruising radius of 500 miles. The bombs used will be of the 550, 1,000 and 1,650-pound sizes.

Every eight day a huge twin-motored six-ton bomber is completed by the Martin Company. After passing its test flight it is immediately flown to Langley Field, Virginia, where the Air Service is concentrating the pick of

its flying personnel and organizing the great aerial fleet that will send the nine German war vessels allocated to that will send the nine German War Vessels allocated to the United States to the bottom of the sea.

The former German vessels are the dreadnaught Ostfriesland, the light cruiser Frankfort, three German destroyers, and four German submarines—the U-111, the U-117, the U-140 and the UB-148.

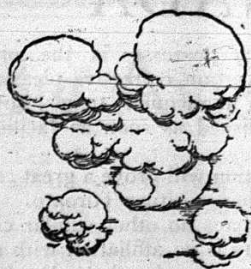
U.S. AIR MAIL PRIZE AWARDS

George W. Lewis, executive officer of the U.S. National Advisory Committee for Aeronautics, on May 18th sent out one thousand dollars (\$1,000) in prizes to the three winners in the Transcontinental Air Mail Contest.

The prize money was donated jointly by five newspapers, namely,—

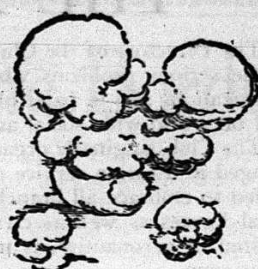
- The Omaha Bee.
- The Salt Lake City Tribune.
- The San Francisco Examiner.
- The Chicago Tribune.
- The New York Evening Post.

The contest opened September 8, 1920, the date of opening the last lap of the Transcontinental Air Mail Route, and ended March 8, 1921, six months later. Mr. William C. Hopson of the Chicago-Omaha Division, was the first prize winner and received five hundred dollars (\$500). Mr. Christopher V. Pickup of the Omaha-Salt Lake City Division, won second money, three hundred dollars (\$300), and Edson E. Mouton of the Salt Lake City-San Francisco Division gained third prize, two hundred dollars (\$200).



RADIO

NEWS



Single V-T Radiophone Hook-Ups

No doubt amateurs will be interested to know that there is a very interesting field of experimentation to be experimented in, and that is the transmission and receiving of radio-telegraph and radio-telephone messages employing one vacuum tube, that is, if the average amateur would stop to wonder at his non-receipt of radio phone messages. The reason for this non-receipt is first, the average radio telephone station experimenting along these lines use one or more vacuum tubes on oscillating circuits, using a wave length considerably below 200 meters; and second the ordinary damped wave receiving set is not able to intercept a continuous wave; and then again, this is only barely possible in largely populated cities, such as Boston, New York, San Francisco, Chicago and Philadelphia, etc. The writer has given, herewith, some simple diagrams of hook ups on the radio phone which are within the scope of the average amateur.

You amateurs that have the proper equipment at hand, hook up a simple short wave regenerative circuit or any other oscillating vacuum tube circuit, and tune down below 200 meters, then down to a 100 meters, and you will hear a string of undamped signals. The writer has been carrying on experiments along these lines with the hook ups described throughout this article, and has obtained successful results with the different circuits described. It has proved to be a subject of very interesting experimentation by the writer and his assistant, and it is their honest opinion that all "radio fans" who care to delve still further into this subject will more than find it interesting.

The writer would say now that he is one of the old timers in the radio game and was associated with the Government during the world war in radio work, and at the present writing, he maintains a laboratory fully equipped for the carrying out of all kinds and of all natures of radio and electrical experiments.

The amateur, in order to try experimenting with the hook ups given herewith, should have primarily, a vacuum tub, either a Marconi V. T., an Audio Tron or an Western electric V. T. The next item will be to have sufficient voltage for the plate, which must have not less than 150 volts. Of course, those of us that are fortunate enough to possess a motor generator outfit can obtain the desired voltage easily, but those that are not fortunate enough to possess a motor generator outfit need not be the least bit discouraged, because the required voltage can be obtained by the wiring of ten or twelve 22 volt unit batteries in series. A better way would be to use between forty or fifty small three cell flashlight batteries wired in series. The reason for suggesting the use of these is that, when

one of these batteries is burnt out or is low, it can readily be replaced, whereas if the unit batteries are used, if one of the cells should get low or go dead, it cripples the rest of the unit, thereby necessitating the entire unit to be cast aside. The rest of the different apparatuses essential in the carrying on of these experiments can readily be found kicking around the average "radio fans" workshop or laboratory, and if not they can be purchased at a small cost at any radio or electrical supply house.

The writer will give herewith a list of the essential apparatus necessary: 1, a vacuum tube; 2, a battery; 3, a variable inductance; 4, a couple of .005 mfd variable condensers; 5, a 10,000 ohm grid leak; 6, a pair of 2,000 or 3,000 ohm receivers; 7, an ordinary telephone repeating coil with a ratio of one to three between primary and secondary; 8, an ordinary telephone transmitter; 9, two large dry cells; 10, an ordinary telegraph key; 11, a 10 or 15 ohm rheostat.

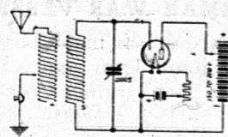


FIG. 1

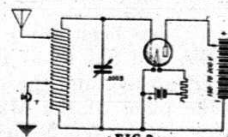


FIG. 2

In Figure 1 we have a simple and yet effective radio phone hook up. The amateur, by placing a microphone or an ordinary telephone transmitter in the ground lead, may talk a short distance with his radio pals, but he must increase his plate voltage to about 200 volts. The amateur will obtain a lot of amusement out of a set like this; in fact, all he will have to do is to change the connections on the hook up of his loose coupler as I mentioned above the necessary change in the plate voltage. As will be seen in the diagram, everything is marked to simplify matters for the reader. Then again, as shown in Figure 1, the amateur can use his receiving loose coupler.

Figure 2 shows the method of using a two slider tuning coil. This circuit has proven to be very efficient. As can be seen, this hook up can be readily connected without much changing of the wiring. In Figure 3 we have

a circuit which can be used for radio phone or radio telegraph of continuous wave. The amateur will note that the writer has used conductive coupling between the tube and antenna circuit. The reason for using a single coil is this: there is a greater amount of energy transferred to the antenna with a coil of this type.

I will now go on and explain how a coil of variable

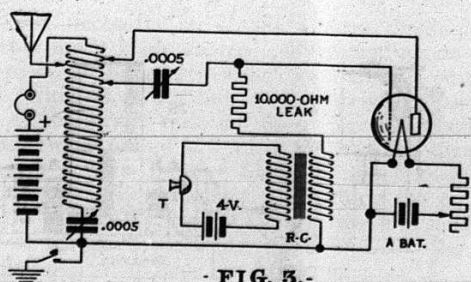


FIG. 3.

inductance for use in the set, Figure 3, can be wound and made up complete. First procure a tube 6 inches in diameter and about 7 inches long. This tube can be either of the following: Bakelite, rubber, wood or cardboard. The writer would advise the amateur to use a cardboard tube, as it is less expensive and easily procurable at a little cost to the experimenter in science. Give it one or two heavy coats of shellac and let it stand for a couple of hours until it has had a chance to dry thoroughly. Procure about 175 feet of No. 20 bare copper magnet wire and wind one hundred turns of this wire upon the tube, having spaced each turn evenly apart, and having the wire drawn tight upon the tube so as to prevent slipping. Drawing the wire tight will cause an impression upon the tube, thereby causing the wire to make a groove for itself and prevent it from slipping upon the tube. Next procure some Eureka clips, small ones preferable, and solder on them some long pieces of No. 18 flexible lamp cord. These will then in turn connect with the respective instruments or apparatuses, which will, in turn, enable the amateur to make variable his inductance. We will now assume that the amateur has the remaining parts available.

In regard to the telephone receivers used, as will be seen by the diagram in Figure 3, the receivers are in series with the B-batteries, which are of high potential, and if the amateur should by any chance use receivers under 2,000 ohms resistance, he would be apt to burn them out, so the writer would suggest receivers with a resistance above 2,000 ohms.

3,000 ohm receivers were used in carrying on the experiments. The condensers used are .0005 mfd. and the repeating coil having a ratio of one to three and the power used for this coil are two ordinary dry cells wired in series, giving three volts. If the amateur has not or can not obtain a telephone repeating coil that in fact most any coil with an iron core and having a primary and secondary wound upon it will do the trick very nicely, that is, if the coil has a ratio of one to three. The writer used a one-inch spark coil with the vibrator removed or screwed down tight. The transmitter can be of the ordinary telephone type.

The writer would suggest that when the amateur wants to receive, he should reduce the plate voltage. This

is possible by having the positive lead of the B-batteries soldered to one of the above mentioned clips by connecting one of the various B-batteries at will. He is also cautioned to have the key closed in the ground lead otherwise his receiving will be nil. When the amateur is about to use the radio phone he is also advised to have the key in the ground circuit closed.

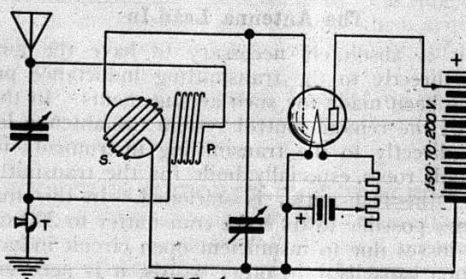


FIG. 4.

The amateur will be more than satisfied for all his work and trouble in the carrying on of the experiment. I have obtained very satisfactory results and have spent many very pleasant hours as per experiments hereto described.

The writer wishes to state that if the amateur should apply shellac to any of the coils hereto described in these experiments, use a very thin coat in all or any other compound that he may apply, and it is then advisable to let the coils dry over the stove or heat of some kind for a couple of hours. The reason is, because shellac or compound of any kind forms an imperfect dielectric, therefore causing energy losses.

Passing on to Figure 4, it will be seen by the diagram that this experiment, like the others, is very simple and can be easily performed by the average amateur. An ordinary variometer with the necessary connections as outlined in the diagram, a couple of friends of the writer at the present writing have made up sets similar to the one outlined in Figure 4 and have obtained very satisfactory results with them, and the writer is sure that the amateurs of to-day will surely get good results. There is no need of describing any of the smaller details, because the diagram is self-explanatory.

GREAT GROWTH OF WIRELESS IN CANADA

With official statistics showing that Canada has nearly 20,000 trained airmen, all of whom were given an instructional course in wireless, and in most cases before learning to fly, authorities concede that Canadians should be able to build up a wireless trade as well as a general system of wireless communication faster than any other country in the world. There are thousands of wireless outfits now in operation throughout the Dominion.

FLIES 3,000 MILES AGED TWO-AND-ONE-HALF

Little Lorraine Ericson, two and one-half years old, daughter of Mr. and Mrs. F. G. Ericson, of Toronto, has been doing more flying lately. Her latest flights were over New York City, which gives the young lady 3,000 miles to her credit. The earlier flights, which began when Lorraine was nineteen months old, were narrated in previous issues of this journal.

Remote Control for the Amateur Wireless Operator

The main feature in connection with the use of remote control is that it permits the amateur to bring his receiving apparatus in the house during the cold winter months and at the same time does not interfere with the operation of the transmitting set.

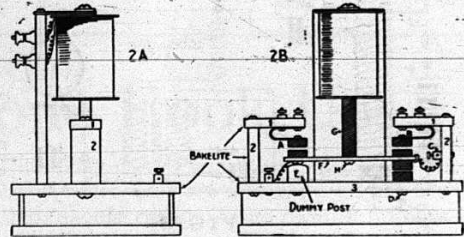
The Antenna Lead-In

As it is absolutely necessary to have the antenna brought directly to the transmitting inductance provisions have been made for such arrangements. In the operation of the remote-control system the antenna lead is brought directly to the transmitting instruments in the shed, small room especially built for the transmitter or wherever the transmitter is stationed. In this manner it becomes possible to tune the transmitter to 200 meters without losses due to insufficient open circuit inductance or antenna capacity. In other words, it is necessary to have the transmitting lead as short as possible, leading to the aerial so that maximum transference of energy takes place through the oscillation transformer and permits for a larger antenna with greater capacity at the same time. This fact cannot be overlooked and it is quite natural then that in designing a remote control system the constructor will begin with this in mind. This I have done.

How the Circuits are Controlled

Having reference to Figure 1 which is a diagrammatic sketch of the whole lay out the principle of operation will be evident at first sight. The transmitting circuits are controlled by a large solenoid at the transmitting station while the solenoid itself is cut into the circuit when the switch at the receiving station is removed from the receiving position. Four No. 14 weather proof wires are run into the receiving station, two—from the solenoid windings to the contact members on the base of the receiving switch and two to the telegraph key, which, of course, are absolutely necessary. One wire is run from the bottom contact of the solenoid switching device (See D in Figure 1) to the switch post I of the single pole single throw receiving switch. This wire, of course, should be insulated and a No. 14 rubber covered wire double braid will serve the purpose very well. It is quite evident that the wire leading from the solenoid which cuts the antenna into the receiving position is disconnected from the receiving apparatus when the SPST switch is raised. When the SPST switch is raised, cut-

up the arm G it changes the antenna from the receiving position to the sending position. At the same time it automatically cuts in the rotary gap motor and the primary of the transformer, both of which are necessarily in parallel across the 110 AC line. Contacts A and E perform

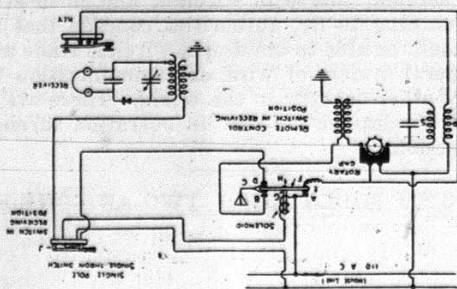


this work. It is very clear that when the SPST switch is down—and the receiving apparatus is cut into the circuit; even though you press the key the transmitter is disconnected from the circuit and transmission is impossible. The contact members will not disconnect due to the alternating current transversing the windings of the solenoid simply because the spring contacts permit the contacts on the arm to go slightly higher than they would were they on solid posts. The small drop at the zero point of the AC current only permits the arm to drop slightly and this is taken up by the spring pieces. No break in contact is experienced.

At no time is it possible for the high potential surges from the transmitter to pass through to the receiving apparatus—an ideal condition.

Constructing The Solenoid Switch

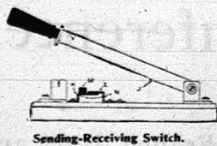
The drawing of the completed magnetic switch is self explanatory in regards to the parts which are required. It is not considered wise to give any dimensions, for experimenters will make use of odds and ends found about the "spark room." There are, however, several points which should be explained in detail so that the switch and its members may function with the greatest of satisfaction to the builder. The solenoid is constructed so that it can be either cut directly across the A. C. line, or it may be wound for several amperes and in series with a bank of carbon lamps in parallel, to give the correct amperage. The whole supporting base and posts are of bakelite or hardrubber. Piece F with the two movable contacts on is made of fibre or hardrubber. The contacts should be of silver, and I am quite sure you can purchase these for about fifty-five cents each. The two top contact members are mounted on 1/32 bronze strips so that when the arm of the solenoid comes up far enough to meet them they give slightly. This takes up the play due to vibrations in the alternating current source. By this method a break in the circuit for any instant of time is impossible. By referring to figure 1 again and then to 2a and 2b the connections and operation of the device become more clear. In order that the arm of the solenoid may rest evenly when in the receiving position a small dummy (post on the left hand side of the drawing 2b) is made fast to the base. The pull of the arm should be at least one inch between the two contact points.



ting the receiving apparatus out of the circuit it permits piece N to come up and make contact with piece L closing the circuit of the solenoid. When the solenoid pulls

The Controlling Switch In Receiving Room

Figure 3 shows a plan view of the switch to be employed in the receiving room to control the magnetic switch which is installed in another room with the transmitting apparatus.



It is only necessary to obtain a large single pole single throw knife blade switch. By mounting on the base two pieces of brass strip (such as L and K) so that when the switch is down and in the receiving position the blade of the switch rests on top of piece M opening the circuit between K and L. When the switch is thrown up or open it permits the two pieces K and L to come together, thereby making contact and closing the circuit to the magnetic switch solenoid. This throws the sending apparatus in readiness for transmission and cuts the receiving apparatus completely out of circuit.

By referring to Figure 1 again it is very clear that at no time can the high potential surges come back into the receiving apparatus, because the transmitting apparatus cannot be worked until the receiving circuit is thrown completely out of the circuit. Furthermore, should we go as far as to contemplate a jump from post C which is connected to the antenna, back to post D which leads into the receiving room (while transmitting), we find that the receiving set is still disconnected because the knife blade switch is open.

This system can be worked with the greatest of ease and is by far the simplest method yet described.

WIRELESS FOG SIGNALS FOR NEW YORK HARBOR

Three wireless fog signals are being installed by the Department of Commerce for finding the entrance to New York Harbor. One will be on Fire Island Lightship for vessels coming from the east, one at Sea Girt for vessels from the south, and the third on Ambrose Lightship at the entrance to the channel.

They will send out an automatic radio message continuously. The signals can be picked up by means of the radio compass, which will indicate the direction from which the signals are sent. By taking his bearings from different stations the master of a vessel can determine his exact position.

This system is the opposite of the former wireless range finding one, in that a navigator determines his own position instead of flashing a signal to shore and having radio operators notify him where he is. Moreover, a vessel will not have to wait to get its position. The sending apparatus can be operated by the regular light keepers, wireless operators not being required.

NEW WIRELESS AUTOGRAPHIC MACHINE

A machine for recording autographically radio signals from great distances, constructed on a different principle from the cumbersome apparatus now in use, has been completed and was demonstrated by Dr. E. A. Eckhard and Dr. J. C. Karcher of the Bureau of Standards. They have placed it in the same circuit and recorded with the same pen the ticks of a chronometer and the naval observatory time signals from Annapolis.

A chronographic recording drum pushes the paper past the chronograph pen at a uniform rate of speed and the signals are recorded as humps of the line, short

**All Makes of Batteries
Repaired & Recharged**

Starters & Generators Repaired

2355 DUNDAS ST. cor. Bloor
Phone Junct. 5299

humps for dots and longer ones for dashes. By winding the actuating magnets in different directions, it is possible to record simultaneously the seconds of local time as furnished by a chronometer and compare them with standard wireless observatory time without the errors of "lag" of the instruments.

The machine was perfected in order to replace the present wire telegraphic ear recorded methods of making scientific time observations.

WEATHER REPORTS BY WIRELESS

The United States Weather Bureau has arranged with the Department of Science of St. Louis University for the latter to send broadcast by radio-telephone twice each day the official weather forecast for Missouri and Illinois, and also the reports of the water stages of the Mississippi, Missouri and Illinois Rivers and their tributary streams.

This service will start on April 15 and the weather forecasts will be sent out at 10 a.m. and 10 p.m. of each day from the powerful wireless station of the University, which until the completion of the Government wireless station at the Chain of Rocks also was used to direct the aerial mail between St. Louis and Chicago. In that service, however, the key was used, and in the Weather Bureau Service the radio telephone, to which anyone with a proper receiving apparatus, can "listen in," will be the medium of communication.

The arrangements for the service were made by Montrose Hayes, Chief of the Weather Bureau of St. Louis, of which the St. Louis University Observatory is a co-operating unit and with the approval of the Department in Washington. The service will send the official Government forecasts, and the Department of Agriculture requests the newspapers and the Chambers of Commerce of the various cities and the farmers' organizations within a radius of at least 150 miles in every direction from St. Louis, to make preparations to take advantage of the service, which St. Louis University will give gratuitously for the benefit of the public of that section of the United States.

The Department of Science of the University will be glad to receive any suggestions from individuals or organizations who are willing to co-operate in the service, and who will look after the local distribution or publication of the wireless reports.

ROYAL WARRANT CONFERRED

A sequel to the recent visit of H. R. H. the Prince of Wales to Canada and later his acceptance of the Honorary Presidency of the Aero Club of Canada, is seen in the grant of a Royal Warrant appointing the Imperial Tobacco Company of Canada, Limited, as tobacconists to His Royal Highness. The Royal Warrant has been received at the head offices of the Company in Montreal.

The Imperial Tobacco Company of Canada, Limited, had the honor of manufacturing the cigarettes supplied for the use of H. R. H. the Prince of Wales throughout his memorable tour of the Dominion in 1919. The Royal Warrant now conferred may, therefore be regarded as a recognition originating in the personal appreciation of the Prince.

International Wireless Conference at Paris, France

Forty Experts, Representing Great Britain, United States, France, Italy and Japan, to Formulate Plans to Bring Radio Communication into More General Use.

Forty experts, representing Great Britain, United States, France, Italy and Japan, met at Paris for a prolonged conference on the question of world wireless communication. The purpose of the conference was to harmonize the radio rules of the world and formulate plans for bringing the wireless into more general use through the encouragement of private enterprise under Government control.

The United States Government sent a delegation of ten of its military and civil experts, headed by Major-

General Geo. O. Squier, chief of the signal service of the United States Army.

It is said that the question of the Island of Yap did not come up in any form before the conference, although world wireless communications as they exist were reviewed and discussed.

Great Britain sent a large delegation, of which Admiral of the Fleet Sir Henry B. Jackson was the head.

Aviation and Wireless News expects to be able to publish details of the work of the conference in the July issue.

LET US DO IT FOR CANADA

Arrangements were completed in the United States and the radio market reports for farmers were started April 15. In the beginning reports were sent from Omaha, St. Louis, Bellefonte, Pa., and Washington.

The tentative schedule is as follows:—

From Omaha a complete report of the Omaha live stock market will be sent at 11.15 a.m. each day and at 11.45 a.m. a complete report on the Kansas City live stock market. At 2.15 p.m. a grain and potato report, giving prices and conditions at the Chicago, Minneapolis, Kansas City and Winnipeg grain markets, and similar information at the Chicago and other potato markets, will be dispatched. At 5 p.m. a daily radio-marketgram will be sent, covering national market conditions on livestock, fruits and vegetables, grain, hay and feed.

The reports to be sent from St. Louis are a national stockyard live stock market report at 11 a.m., a Chicago live stock market report at 11.30 a.m., a grain and potato report at 2 p.m., and the radio-marketgram at 7 p.m.

The Washington station at the post office department will dispatch the 5 p.m. radio-marketgram heretofore sent out by the Bureau of Standards, a report that gives a general daily summary of eastern market prices on live stock and meats, grain, hay, feed, fruits and vegetables. The same report will be released from the Bellefonte station at 7 p.m. Any changes that are found necessary in the above schedule will be announced by radio in advance of such changes.

RADIO RESEARCH CLUB ELECTS TORONTO MEN

The Radio Research Club, with headquarters at Toronto, met on May 19th and elected the following officers: President, C. A. Culver; Secretary-Treasurer, F. K. Dalton; Committee, W. C. C. Duncan, E. J. Bowers, and Captain J. E. Genet.

Mr. F. K. Dalton, the new Secretary-Treasurer, states that he will be glad to hear from any one interested in radio research work as the club proposes to take an active interest in all such matters. The address of the Secretary-Treasurer is Weston, Ontario, and his telephone number is 97.

EVERY RECEIVER A TRANSMITTER!

During the war, when our stations were shut down, the Governments carried on many tests amid the then stilled air. Interference was impossible, because of the shut down. Tests were made on a large scale production. Conditions more favorable than that will, perhaps, never be again.

During this period, the Bureau of Standards, at Washington, D.C., the home of radio and sciences, made some very weird tests in radio communication. A most remarkable one is here mentioned.

A receiving set (vacuum tube) is constantly emitting a continuous wave, of a definite and certain wavelength, depending upon the instruments used, their capacities and wave lengths. When the tube is tested for oscillations, that is, the grid touched with a moist finger, and two distinct clicks are heard, if oscillating, the emitted wave length is varied. With a sensitive receiving set, the emitted wave of a receiving tube can be heard. That is, if there were two very sensitive (9 stage) receiving sets listening in, and outside interference was nil, either station could hear the wave emitted by the receiving bulb of the other. By touching the grid, the wave may be varied in length, and communication carried on.

This was actually accomplished during the war tests. A 9 stage amplifier was used at both stations, one at the Bureau of Standards, and the other at the radio station at the Capitol. The two stations communicated with each other by simply touching the grid. No switches were thrown from sending to receiving.

It is thought that, it being the case that every receiving tube being a transmitter itself, and as waves are sent out every time the filament is lit, some law will be enforced in the near future to compel every station to adopt a circuit which does not emit a continuous wave when receiving. Perhaps some of the interference, strays, static, or X's which we hear is due to the emitted wave of the receiving bulb.



"Little Pal of Mine"

Enjoy them to-day

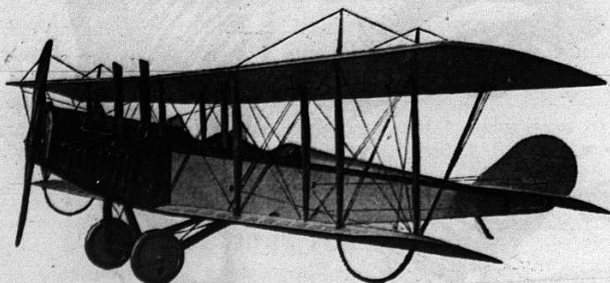


PLAYER'S
NAVY CUT
CIGARETTES

Canadian Pioneers in Aeroplane Building.

NEW PLANES

\$2500⁰⁰



The **CANUCK**

DESIGNED BY F. G. ERICSON

The "CANUCK" is undoubtedly the most used plane on the Western Hemisphere.

The "CANUCK" has become the "Universal" plane.

The "CANUCK" has been used with success for every purpose where an aeroplane could be of service.

The foremost "Daredevils of the Air," amongst others Locklear, Elliott, Al. Wilson, Jennings and others, all use "Canucks."

Ericson Aircraft Limited

120 KING STREET EAST

TORONTO, Canada

LONG DISTANCE TELEPHONE—MAIN 7180

Manufacturer & Designer of The "CANUCK" Plane

IMPORTANT—Watch our announcement re prices of Flying Boats in next month's issue.

THE promptness with which your requirements are filled is only one of the many sources of satisfaction you will enjoy when you "try Van Schaack."

Vanite Approved NITRATE DOPE

Complete stocks maintained at Boston and Chicago. Shipments made the same day whether you order a can or a carload.

INDEPENDENT MANUFACTURERS

VAN SCHAACK BROS
CHEMICAL WORKS
3358 W. 30th AVE. CHICAGO, U.S.A.

»TITANINE»

DOPE & VARNISHES

PIGMENTED PROTECTIVE COVERING
16 COLORS IN STOCK

All made to formulæ approved by British A. I. D.

By
TITANINE, INC.

Factory and
Executive Offices:

MORRIS & ELMWOOD AVES.
UNION, UNION COUNTY, N.J.

PRIVATE CLASSES & CORRESPONDENCE COURSES.

"AERODYNAMICS," "AEROPLANE DESIGN,"

"AEROPLANE DRAFTING"

"MOTOR DYNAMICS" & "MOTOR DESIGN"

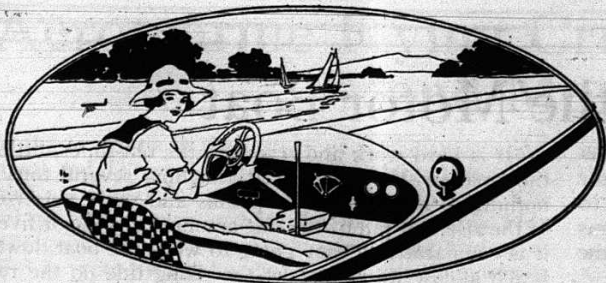
NEW YORK SCHOOL OF AERONAUTICS

Under the supervision of Van Muffling & Marx, Consulting Aeronautical Engineers.
Box 106, Grand Central P. O., New York City.

The
Rembrandt Studio
141 Yonge Street
Toronto

Artistic
Photography

Special Rates to
Members of
C. A. F.

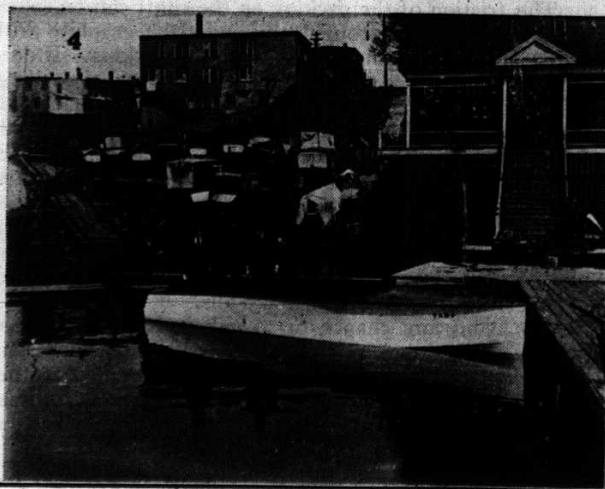
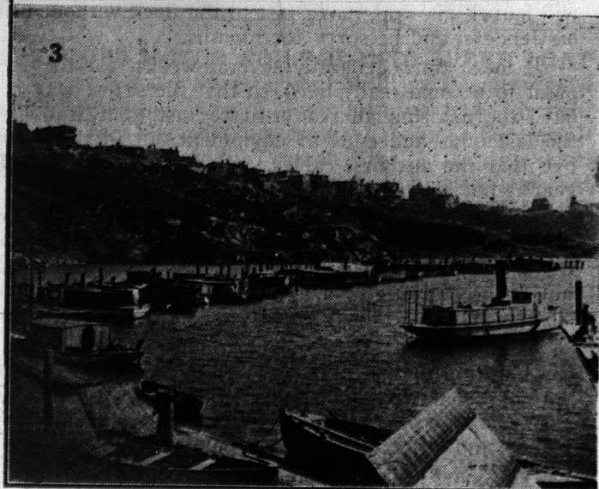
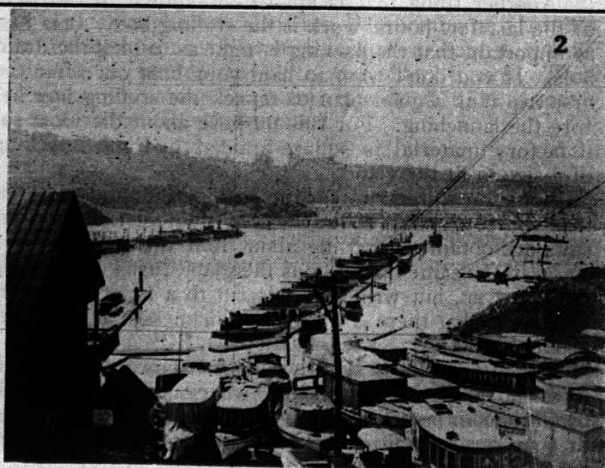
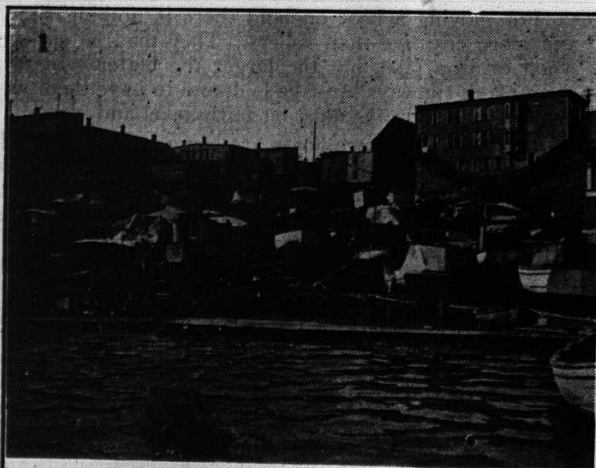


MOTOR-- BOATING

St. John, N.B., Power Boat Club

The St. John, N.B., Power Boat Club, at Marble Cove, St. John, has a membership of five hundred (500) and 380 motor boats. The officers for the season of 1921 are: Honorary Commodore, C. Chestly; Commodore, Dr. J. H. Barton; Vice-Commodore, Geo. Lake; Rear Commodore, Edwin Brown; Secretary, R. J. Adams; Treasurer, Geo. M. Palmer; Executive Committee, Frank Pidgeon, Fred. Roberts, Geo. Rogers, John Kiervin, Wm.

Edgitt; Chaplain, Rev. C. W. Nichols; Fleet Captain, I. L. Heans; Harbor and Railroad Committee, Sergt. Geo. Lake, Geo. M. Palmer, Geo. Rogers; House Committee, Frank Pidgeon, John Kiervin, Wm. Edgitt; Gasoline Committee, Robert J. Adams, E. Brown, F. Roberts; Sailing and Racing Committee, E. Brown, E. D. Purdy, E. N. Herrington, F. S. Hayter, Otis Muller, H. C. Lemmon; Measurers, W. P. Urquhart, W. S. Harrison.



1.—Motor boats waiting their turn to slide in the water at the St. John, N.B., Power Boat Club.
2.—Scenes at St. John Power Boat Club. Looking along the right hand side or the westerly side of Berths.

3.—Scenes at St. John Power Boat Club. Looking along the left hand side or easterly side of Berths.
4.—Scenes at St. John Power Boat Club, Vamp, a little speeder out to clean up some of the local speed stuff.

Launching the Motor Boat

After the boat has been scraped, painted, and varnished from stem to stern and keel to masthead, the motor overhauled and cabin set to rights, the next thing is to get her into the water. This is accomplished in various ways, depending mostly upon local conditions and the equipment at hand.

There are a few things, however, that should be looked after before the launching. Has a plug been put in the drain hole in the bilge? More than one boat has been put over in a hurry to catch the tide and this little—though mighty important—detail has been forgotten, much to the disgust and disappointment of the owner. It usually means some hustling to get her out again, to say nothing of a bilge full of water and a lot of equipment to be dried out.

It is well to make the plug of dry white pine, drive it in tight, and then saw it off flush with the planking. A pine plug that has had a coating of white lead before driving will swell after a few hours in the water and be as tight and firm as part of the planking itself.

Another thing that is apt to be slighted in the rush of the last few hours' work is the stuffing box. It is just as important that the packing is tight as to plug the drain hole. If you don't want to haul your boat out after the first trip it is a good plan to repack the stuffing box before the launching. For this purpose about the most satisfactory material is square-braided hydraulic packing of a size to fit the gland.

Some men prefer to cut the packing into short lengths that will form rings about the shaft, but just as good results are obtained by using about four turns wound in a spiral in the same direction as the gland turns when being tightened up, but with the ends cut to a taper and overlapping so that there will be four thicknesses at all points about the shaft.

When a wheel is slightly out of balance or the shaft is worn, the packing invariably wears out rapidly. This condition can be helped to a great extent by putting three or four carefully fitted rawhide washers in the box with the usual packing.

The friction of the packing on the shaft can be somewhat reduced by thoroughly mixing flake graphite with grease and rubbing the mixture into the packing. It does no harm to put some of it between each layer of packing.

Another piece of equipment aboard cruisers that needs some attention in the spring is the toilet. Some are made with leather gaskets and check valves, and as leather dries out and shrinks, sometimes even cracks, the pump and valves should be given a little attention. When rubber balls are used for checks in the waterpipe, they are generally stuck fast to their seats in the spring. It is a good plan to clean the corrosion from the seats with sandpaper or emery cloth and put in new balls.

To avoid any chance of a leak it is a pretty good scheme to examine all the water and drain connections through the hull. Although the fittings are bronze they have been known to corrode to such an extent as to break off at the planking from the least movement or vibration.

When the boat is hauled out in a shipyard or on the grounds of a yacht club with a marine railway, the launching is a simple matter once the craft is on the car. It is the man who has his boat up on the bank and no elaborate mechanical equipment at hand that needs all the help his friends can give him.

It is hard work and trying to the old-timer, little less the amateur, to move a boat weighing several tons with nothing to help but a few planks and some pipe rollers. If the rise and fall of the tide amounts to four or five feet it is comparatively easy going to work the boat down the beach at low water and let the rising tide do the rest.

The man who has to use his head as well as his hands is the one who must launch his boat from the bank at high water. It is then a case of getting the boat to the top of the incline, making sure that everything is ready, and trusting to luck that your skids and sliders work as intended.

It costs a little more for material, but when a boat must be handled by inexperienced men, a substantial timber cradle is the best possible insurance against accident. It should have long heavy stringers that will carry the weight to the rollers or greased sliders without bending. The cross frames should fit the hull snugly and be well braced fore and aft. It is practically impossible to upset a boat when such a rig is used.

For moving a boat on land there is nothing simpler and more effective than rollers. They may be either of wood or iron pipe, but the larger the better. In using them plank runways must be laid, and to have them work properly the runways must be fairly level and smooth.

In shipyards where boats are being moved every day and a power winch is available, greased skids and sliders can be used with good results. When once in motion the pull required is no more than with rollers, but the force necessary to start is considerably more.

The day of the old hand-powered capstan or the home-made crab has about passed. They answered the purpose all right in the days of sail boats, but the motor boatman knows what a little "one lugger" will do when geared to a winch. A capstan would make him run around in circles in more ways than one.

A few boats are put over with all the equipment aboard, but that is more generally the exception than the rule, and many an owner who spent hours on the painting will launch his ship, make fast to the dock without using his fenders, and be sorry for months.

It takes time, generally several weeks, for the fresh paint to become really hard, so that the safest way is to have the mooring all ready, make fast to it, and bring the last odds and ends of equipment out in the tender. See that the anchors, cables, and other heavy or bulky gear is put aboard just before launching.

Too much caution cannot be taken to have the boat securely blocked on the cradle or car before she takes the ways. There is bound to be more or less jolting, and unless the blocking is in tight a spill is not a remote possibility, and with a heavy boat the results are disastrous.

It is far better to spend ten minutes making sure of the blocking than a half day righting a capsized boat—with the chances of cracked frames or broken planking. Some boatmen prefer to spike the cradle and blocks together, and others depend on rope to do the trick.

To start the season right, without worries and troubles, don't rush things, be sure that your boat is ready for the water and use all possible care in getting it into its natural element. Nothing is more discouraging than an accident at the launching.

Aeromarine Flying Cruiser Visits Toronto and Montreal

For the first time in the history of Canadian aviation, Montreal and Toronto were visited by a large flying boat carrying passengers and coming from a foreign port. The arrival in Toronto was on Saturday morning, May 14th, and the good ship was an Aeromarine flying cruiser of the F-5-L type, owned by the Aeromarine Engineering and Sales Company, Inc., of New York. The flying boat had been operating in the mail service of the West Indies and her arrival in Toronto completed 2,500 miles of successful flying, coming here by way of Washington, New York and Montreal. The boat paid a short visit to Montreal so that her passengers might get acquainted with the Canadian metropolis, and then passed up through the Thousand Islands, stopping over for one night at Belleville, Ont., and then proceeding to Toronto, making one of the most graceful landings ever seen on Toronto Bay, and depositing her passengers at the wharf of the Toronto Harbor Commission. They were then escorted to the home of the Aero Club of Canada, where they were entertained for a short time before leaving for Buffalo and Detroit.

The Aeromarine flying cruiser has a capacity for fifteen people — eleven passengers, two pilots and two mechanics. Members of the Aero Club of Canada will be interested to know that the flying boat was in charge of Capt. Theodore L. Tibbs, chief pilot, and who is a Tor-

onto man who won many decorations and honors during the war as a flight commander in the Royal Air Force.

Included among the passengers were Mr. C. F. Reddin, president of the Aeromarine Company of New York and one of the foremost aeronautical men of the United States; Mr. and Mrs. Howard E. Coffin, of New York; Dr. Inches, police commissioner of Detroit, and Mr. J. G. Frankel, of the International Film Company. Lieut.-Col. Thomas Gibson, president of the Aero Club of Canada, accompanied the party from Toronto to Buffalo and was enthusiastic over the wonderful operation of the giant boat.

The Aeromarine flying cruiser of the F-5-L type is powered with twin Liberty motors and is equipped with all the up-to-date devices known to the aeronautical world.

President Redden of the Aeromarine Engineering and Sales Company stated upon his arrival in Toronto that he foresaw wonderful opportunities for regular aerial service in Canada, and was impressed with the splendid country and cities he saw between Montreal and Toronto. Mr. Redden believes that such services are not of the distant future, but of the quite immediate future. These views are also shared by others interested in the aeronautical development of Canada.

MISS TORONTO II. WILL HAVE NEW COMPETITOR

Following the example of Toronto, a number of sportsmen in Chicago have decided that they will produce a *Miss Chicago* to compete against *Miss Toronto II.* Mayor Thompson of Chicago started the subscription list with his cheque for \$1,000. They certainly have the right idea around Chicago, and we hope they are prepared to take a defeat from *Miss Toronto II.*, which is not only a real speedy demon, but will be handled by those who can make her 100 per cent. efficient when she starts leaping over the course. Canadian boat-builders are second to none in producing elegant as well as fast boats.

MERCEDES MOTOR FOR TORONTO SPEED BOAT

Messrs. Samuel Silvester and William Edwards have jointly purchased from Ericson Marine and Aircraft, Limited, the Mercedes aeronautical motor. The installation has been made by Pearson Bros., at Leaside, Ont. Further details of this outfit will be published later, but it is expected some very fast time will be made by the boat, which will be entered for competition in the Thousand Island and other races. The owners are both Toronto men and well known to motor boat men.

MONTREAL FIRM BUILDS BOAT FOR ALFRED ROGERS

Mr. Alfred Rogers of Toronto is having a Smith twin-six converted aeromotor installed in his new 32-foot mahogany runabout. This work is being done in Montreal and is now said to be near completion at the works of the Pyke Motor and Yacht Company.

Mr. F. G. Ericson of the Ericson Marine and Aircraft Company, Limited, of Toronto, was in Montreal recently inspecting the outfit. The boat has been constructed

along very fast lines. It is a V-type mahogany runabout with a receding stern, and should make one of the handsomest boats afloat on Canadian waters this season. She has every modern device which would give her perfect operation.

CANOE CLUBS ACTIVE AGAIN

According to a dispatch from Ottawa the Parkdale Canoe Club of Toronto has been awarded the regatta of the Canadian Canoe Association. This was done at the annual meeting of the association held in Ottawa on the 14th. It has been decided that this event, which is of considerable interest to canoeists of Eastern Canada, will be held on Humber Bay on August 6th.

The association has elected the following officers: Commodore, F. R. Longstaff, Toronto; vice-commodore, Geo. Peterson, St. Lambert's, Montreal; rear commodore, Geo. Carson, Carlton Place.

Official sanction was given for an 80-mile race for the Fiset trophy; 15-mile Grand Trunk Boating Club race, Montreal; 15-mile race for the Craig-Cameron trophy, and the Toronto Canoe Club race.

AERO CLUB OF CANADA NEEDS LARGER QUARTERS

The Aero Club of Canada, through its Board of Directors and committees, is conducting negotiations for new quarters for the club, and at the time of writing there is every indication that it will be but a short time before the club is situated in a home in keeping with the large and growing membership and the need of larger quarters, so that the club may be cured of its "growing pains." The club is having much difficulty in finding quarters which are available and at the same time large enough to take care of the many needs of the organization.

S. PERCY BIGGS,
BARRISTER, SOLICITOR,

Room 540
Confederation Life Bldg.
Phone: Main 971

TORONTO

A. V. WATERS
J. C. TUTHILL

TUTHILL & WATERS

BARRISTERS, SOLICITORS, Etc.

Offices 166 BAY STREET, Rooms 102-107
Phone: Adelaide 2545

TORONTO

R. A. F. and C. A. F.
Souvenirs and Pins

You would be surprised to see the many different novelties we have bearing the R.A.F. and C.A.F. crests.

We cordially invite you to come in or write us. Your own ideas embodied in special designs if you wish.

We have the Aero Club Pins and can supply you promptly.

The Toronto Trophy-Craft Co.
1711-12 Royal Bank Bldg.

ESTABLISHED 1887

Phone—ADELAIDE 1650

A.G. STRATHY
LIMITED

123 SIMCOE STREET, TORONTO

REAL ESTATE :: INSURANCE

H. S. CAMPBELL WILSON, Managing Director

BOYD, MACRAE & WOOKEY,
INSURANCE BROKERS.

INSURANCE IN ALL ITS BRANCHES.

Phone—Main 5406-5407

210-214 Confederation Life Bldg.

J. VICTOR MAPP, C.A.

KRIS. A. MAPP, C.A.

MAPP & MAPP
CHARTERED ACCOUNTANTS

14 KING STREET EAST
TORONTO

Telephone:
ADEL. 5968

ERNEST MILES,

Toronto City Branch,
Canada Life Assurance Company,
46 King Street West.

Phones: Main 3986
Res. Coll. 5474

COMMERCIAL AIRSHIPS

By H. B. PRATT, M.I.N.A.,
Chief Engineer, Airship Department, Vickers Limited.

An authoritative exposition on the subject in all its branches. The following is a summary of the Contents—Evolution of the Airship—Its Commercial Possibilities—Transport Routes—Proposed Types—Stations, Aerodromes—Equipment—Costs—Handling and Navigating—Structure—Power and Propulsion—Internal Arrangement—Building—National Defence, etc.

There are 27 plates, also an Appendix consisting of the Log of the R34 on its Trans-Atlantic Voyages in July, 1919.

Price \$5.00 per copy post-paid, from Booksellers or from the Publishers.

Thomas Nelson & Sons Limited, 77 Wellington St., West
TORONTO

ELMER B. COGSWELL
INSURANCE

PHONES: ADEL. 3226.
BEL. 272.

26 ADELAIDE ST. W.
TORONTO

Dunvegan Heights - \$16.00 PER FOOT

"On-the-Hill"

R. J. LILICO, Mail Bldg., Toronto. Adel. 2345

Quality--Service--Reliability

Three things that have built up our business and placed us in the position of being one of the largest jewelry and silverware houses in Canada.

"A GIFT FROM ELLIS"
IS ALWAYS APPRECIATED

ELLIS BROS.

Jewelers

96-98 Yonge Street

TORONTO

PETERS, GLATT & RUMBLE
CHARTERED ACCOUNTANTS, AUDITORS,
ASSIGNEES AND TRUSTEES

TORONTO OFFICE:
24 KING STREET WEST.

KITCHENER OFFICE:
19 QUEEN STREET NORTH

Distinctive Portrait
PHOTOGRAPHY

AYLETT

Studio 96 YONGE ST.

Main 1098



ONTARIO

SOLDIERS' AID COMMISSION of Ontario

LT.-COL. THE HON. D. CARMICHAEL, D.S.O., M.C., M.P.P.
Chairman

J. WARWICK, Secretary

This Commission, appointed by the Government of the Province of Ontario to aid and assist ex-soldiers of the Canadian Expeditionary Force and the Forces of the Allies, invites all ex-service men now resident in Ontario who are in need of advice or assistance on any subject, to communicate full particulars of their case to the Head Office. All services are free of any charge.

The care of children is a special feature of the work of the Commission. Three Hostels, equipped with all modern requirements, combining exclusive nursing, medical and dental services, are centralized in Toronto under the direct control of the Head Office. Every facility is provided for the temporary care of the children of ex-soldiers of His Majesty's Forces or the forces of any of the Allies in the late War, and the Commission is empowered by an Act of the Legislature to provide accommodation for such children in accordance with the circumstances of the applicant.

The work of the Child Welfare Branch embraces the guardianship and adoption into private homes of orphans or dependent children. Such homes are under periodical supervision by the Staff of this Department and adopted children are assured of all the good influences of home life to which they are justly entitled. Applications for the adoption of children are solicited, and particularly it is desired to secure homes for boys of ages varying from one to twelve years.

All inquiries should be addressed to the Secretary, 116 College Street, Toronto.

Branches and Representatives throughout the Province.

KODAK as you go

Send us your Films to
Develop and Print. . .

Ramsey's for Kodaks

66 King Street West Branch: 372 Yonge St.

Amateur Wireless Apparatus and Supplies

We carry a large assorted stock of apparatus made by
leading manufacturers.

Have you tried the "ACE" "B" Battery? We are selling these at the
same price in Canada as in the U. S. A.

22-½ V	Small	\$1.50	Tapped	\$1.75
22-½ V	Large	\$2.50		\$3.00

We cordially invite you to visit our store, and get our advice before purchasing. It is our policy to supply an Amateur with apparatus suitable for his requirements, and not to sell him apparatus totally unsuitable, merely to make a sale.

COME AND GET A SQUARE DEAL.

Send 5c for our price list. Special attention to Mail orders.

THE VIMY SUPPLY Co., 567 College St., Toronto

THE QUEEN'S TORONTO

CANADA'S DISTINCTIVE HOTEL

COMFORT AND REFINEMENT COMBINED WITH
MODERATE CHARGES.

An Established Reputation for Exclusiveness and
First-Class Patronage.

DELIGHTFULLY SITUATED.

American and European Plans.

HENRY WINNETT, Proprietor.

The favorite Toronto Hotel of Officers of Air Board and
Canadian Air Force.

CANADIAN TRADE REGISTER

A NATIONAL BUYERS REFERENCE
— 1921 EDITION —

This register contains the names and addresses of all Canadian Manufacturers properly classified in one section. In another section, alphabetically arranged, will be found all Canadian Manufactured products, with names and addresses of Manufacturers. These lists would cost several hundred dollars if purchased elsewhere. The Register also contains a great amount of valuable information relating to Canada's Domestic and Foreign Trade, with many illustrations.

Handsomely bound in red silk cloth and printed on the finest paper
Price, prepaid, \$10.00

A. F. PENTON & Co., Publishers,
60-62 ADELAIDE STREET EAST, TORONTO

PRINCE GEORGE

TORONTO

HOTEL

CANADA

Magnificently Furnished — Liberally Conducted
Cuisine Unexcelled — Courteous and Prompt Service
EUROPEAN PLAN

E. WINNETT THOMPSON, General Manager

"Say it with Flowers"

H. G. DILLEMUTH

123 King Street West

Toronto

PHONE NORTH 5968

Bell's Auto REPAIR WORKS

531 YONGE STREET, TORONTO

PROMPT SERVICE — ABC STARTERS — SERVICE STATION

Trade Your Old Camera on a New One

— Cameras Bought, Sold and Exchanged —

LOCKHARTS CAMERA EXCHANGE

58 TEMPERANCE STREET, TORONTO

RADIO APPARATUS

OF QUALITY FOR THE EXPERIMENTER

Order By Mail
Prompt Service
We Ship C.O.D.



Send Stamp for
our new No. 21A
Catalogue. - - -

WE SPECIALIZE IN C.W.

AERIAL WIRE, 7 STRANDS, NO. 22, B. & S.

BRONZE WIRE, per 100 feet \$1.25

B. Batteries, 22½ volt units, block type.

Small size, less taps	1.20
Large size, less taps	2.00
Small size, with taps	1.30
Large size, with taps	2.20

CONDENSERS FOR PANEL MOUNTING, COUNTER-BALANCED, WITH
BAKELITE KNOB AND DIAL.

Capacity .0011	\$4.75
Capacity .0008	4.25

DETECTOR BULBS.

Andotron, two filament	6.00
Electron Relay, four prong base	6.00

MOORHEAD AMPLIFIER BULB, FILAMENT 7 AMP.

Plate voltage 45-60	7.00
4 prong V.T. Receptacle	1.10
No. 55 Head Phones, 2000 O.H.M.S.	4.50
Amplifying Head Phones, type C.	16.50
Loose coupler, 3000 meters, banked wound	14.00
Knob and dial, Bakelite 3½ DIA	1.00
Amplifying transformer, ACME	5.00
Loop Antenna, Type J.J.N.	6.50
J.J.N. Variometer, 4.50 J.J.N. Vario coupler	5.00
Emco Variometer, 7.00 J.J.N. Vario coupler	7.00

The above and many other instruments and parts are described in our catalogue, No. 21A. Write for it now.

DAVID KILLOCH CO.

MANUFACTURERS & JOBBERS OF WIRELESS AND ELECTRICAL SUPPLIES

57 MURRAY STREET

NEW YORK CITY